

# CENTER FOR RECONSTRUCTIVE URETHRAL SURGERY



**GUIDO BARBAGLI, M.D.**  
**Arezzo - Italy**

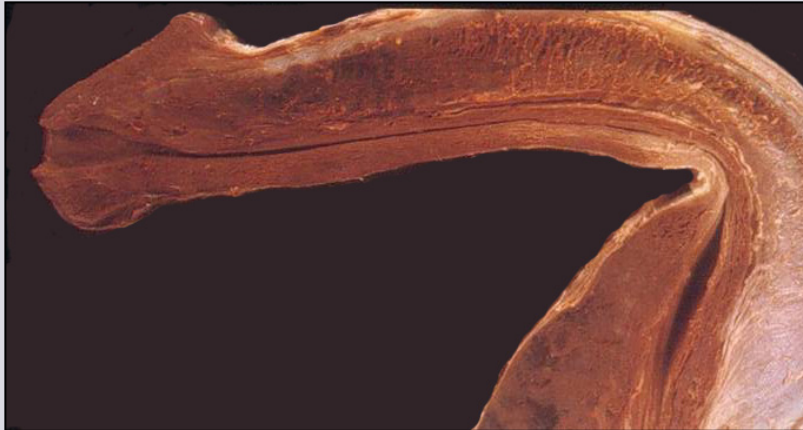
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# **New classification of anterior urethral strictures and a simplified algorithm for their treatment.**



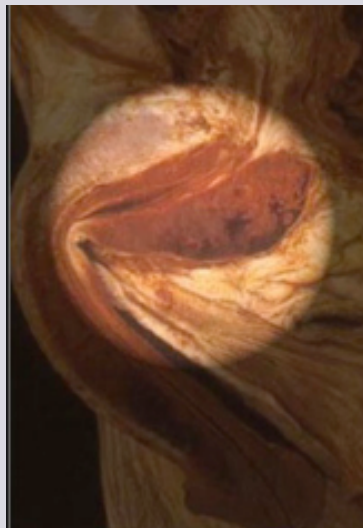
# New classification of anterior urethral strictures



**Penile**

**Simple**

**Complex**



**Bulbar**

**Traumatic**

**Non-traumatic**

# Simple penile urethral stricture



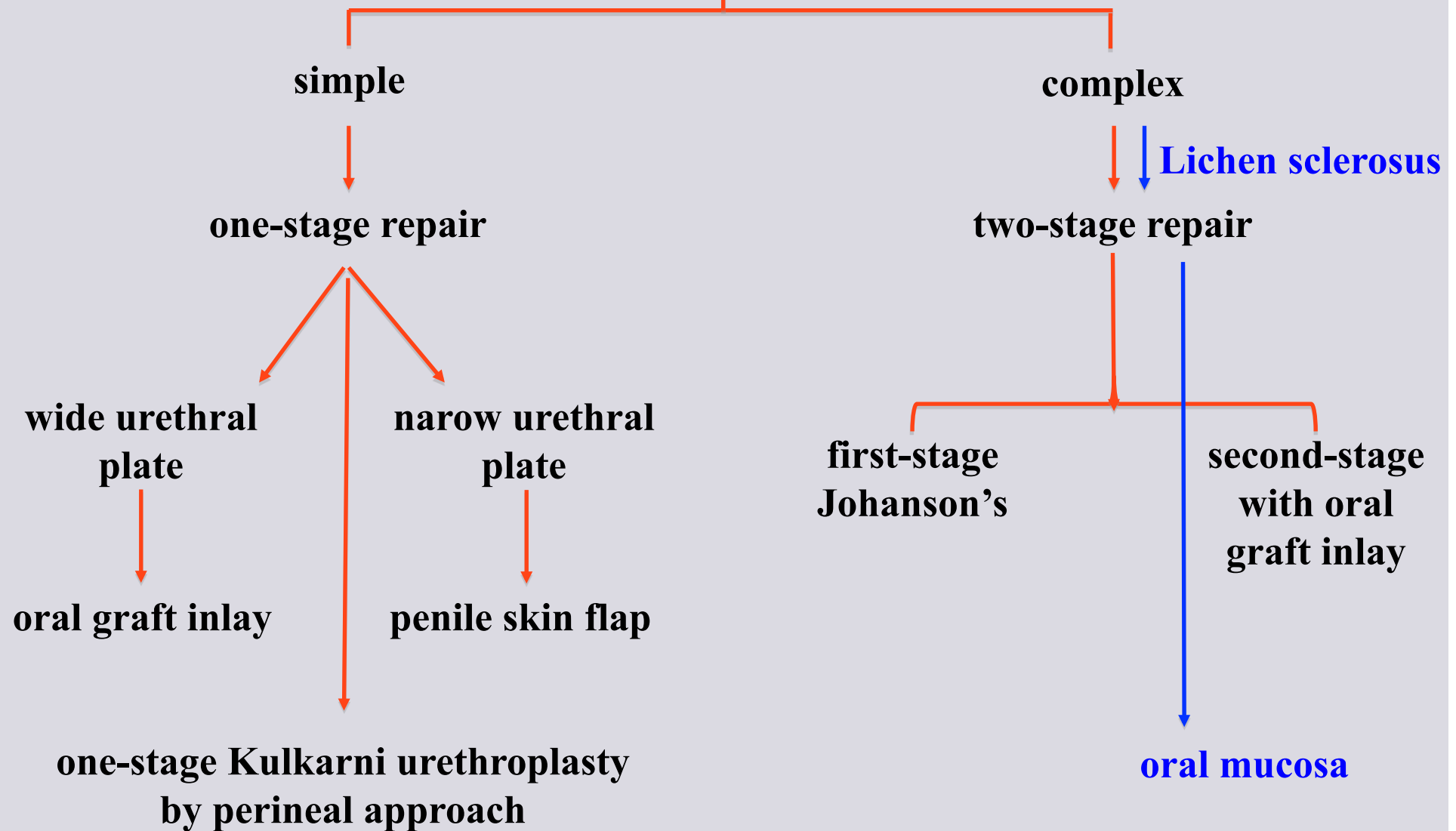
1. The penis and genitalia are normal
2. Practicable urethral plate
3. No Lichen sclerosus
4. No failed hypospadias repair
5. No prior failed urethroplasty

# Complex penile urethral stricture



1. Genital Lichen sclerosus
2. Failed hypospadias repair
3. Prior failed urethroplasty
4. No practicable urethral plate

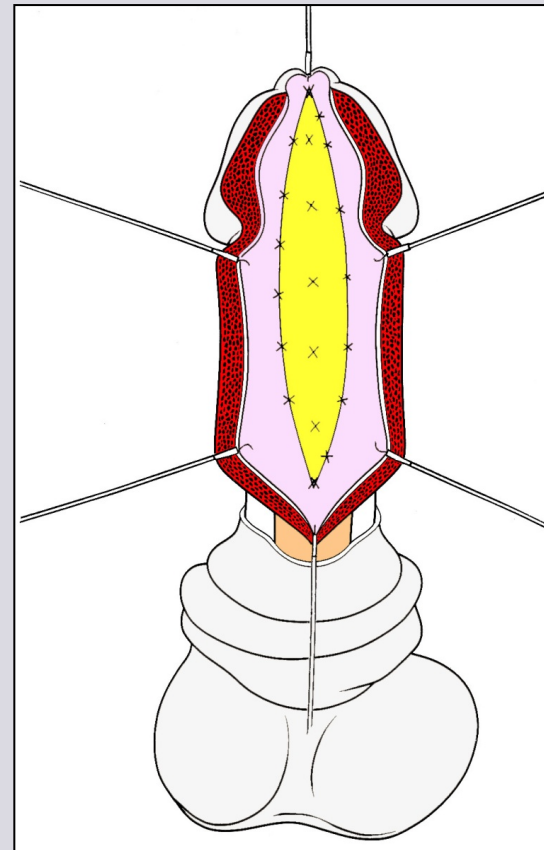
# Penile urethral stricture





# One-stage penile graft urethroplasty (wide urethral plate)

## Surgical technique

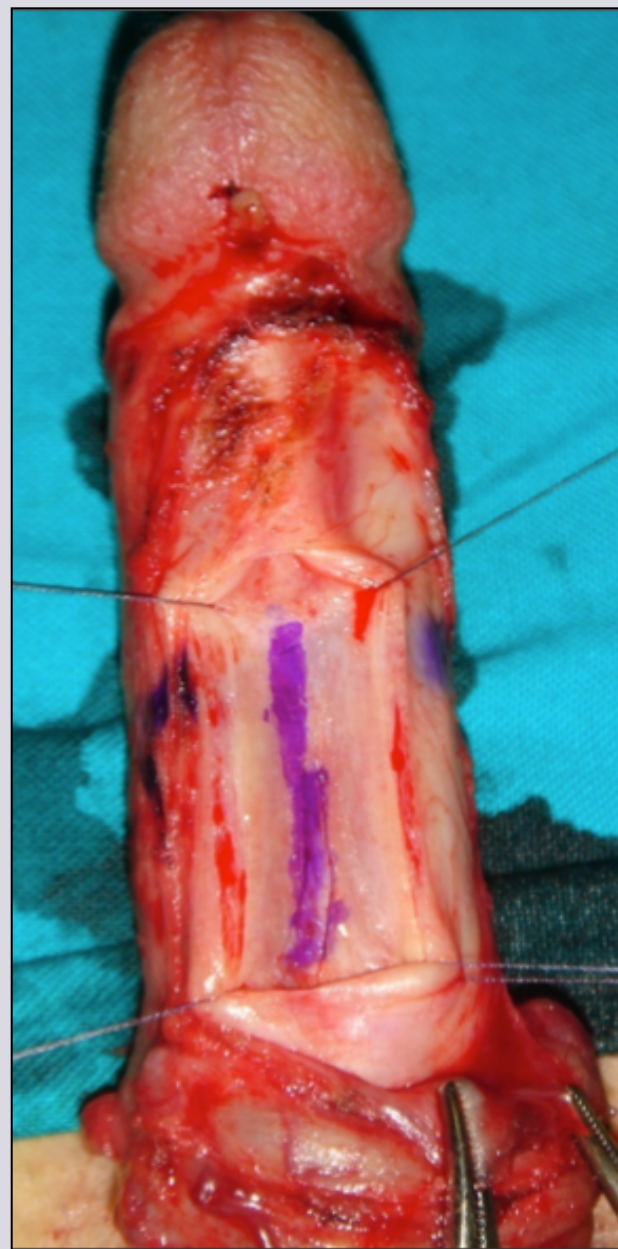




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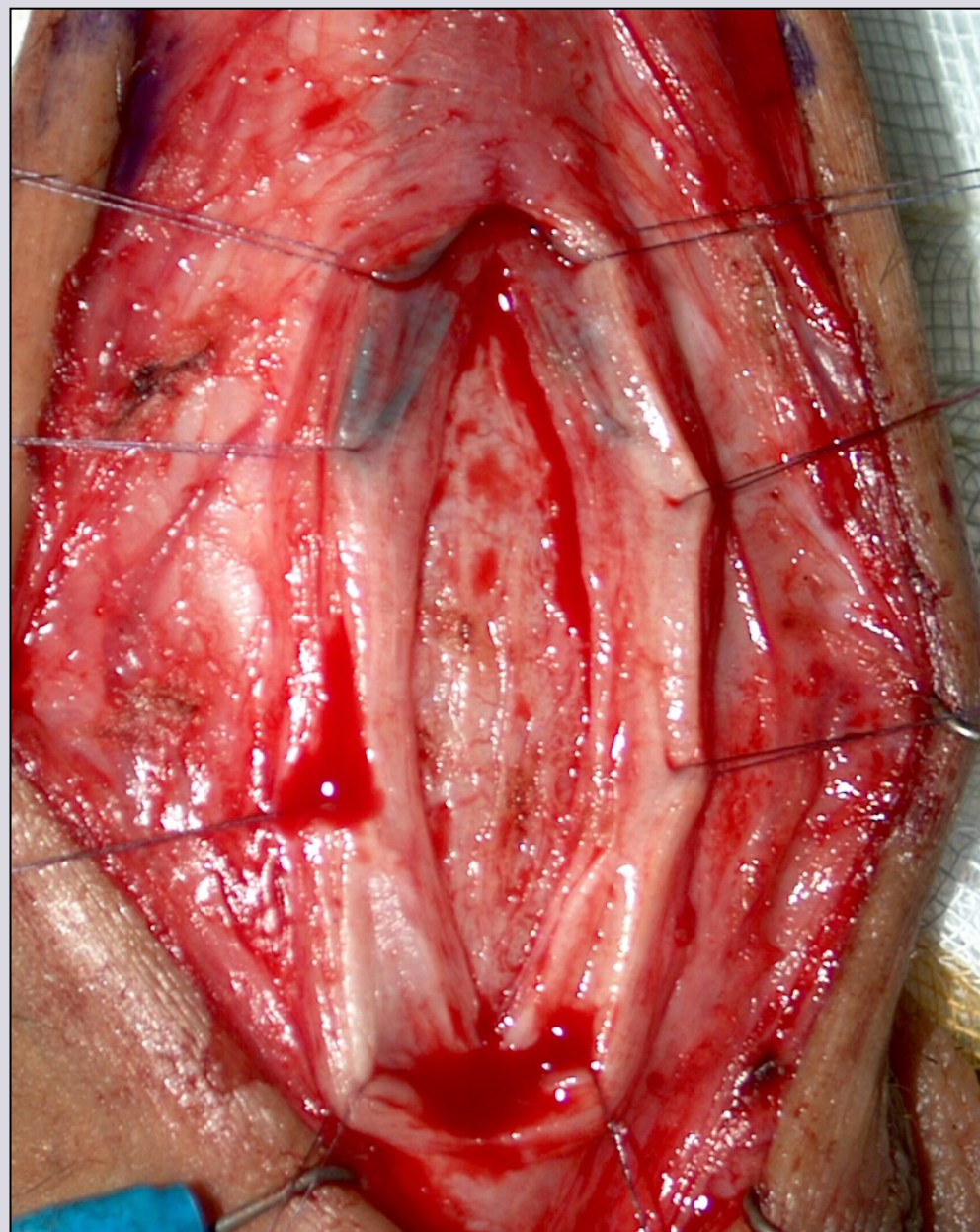
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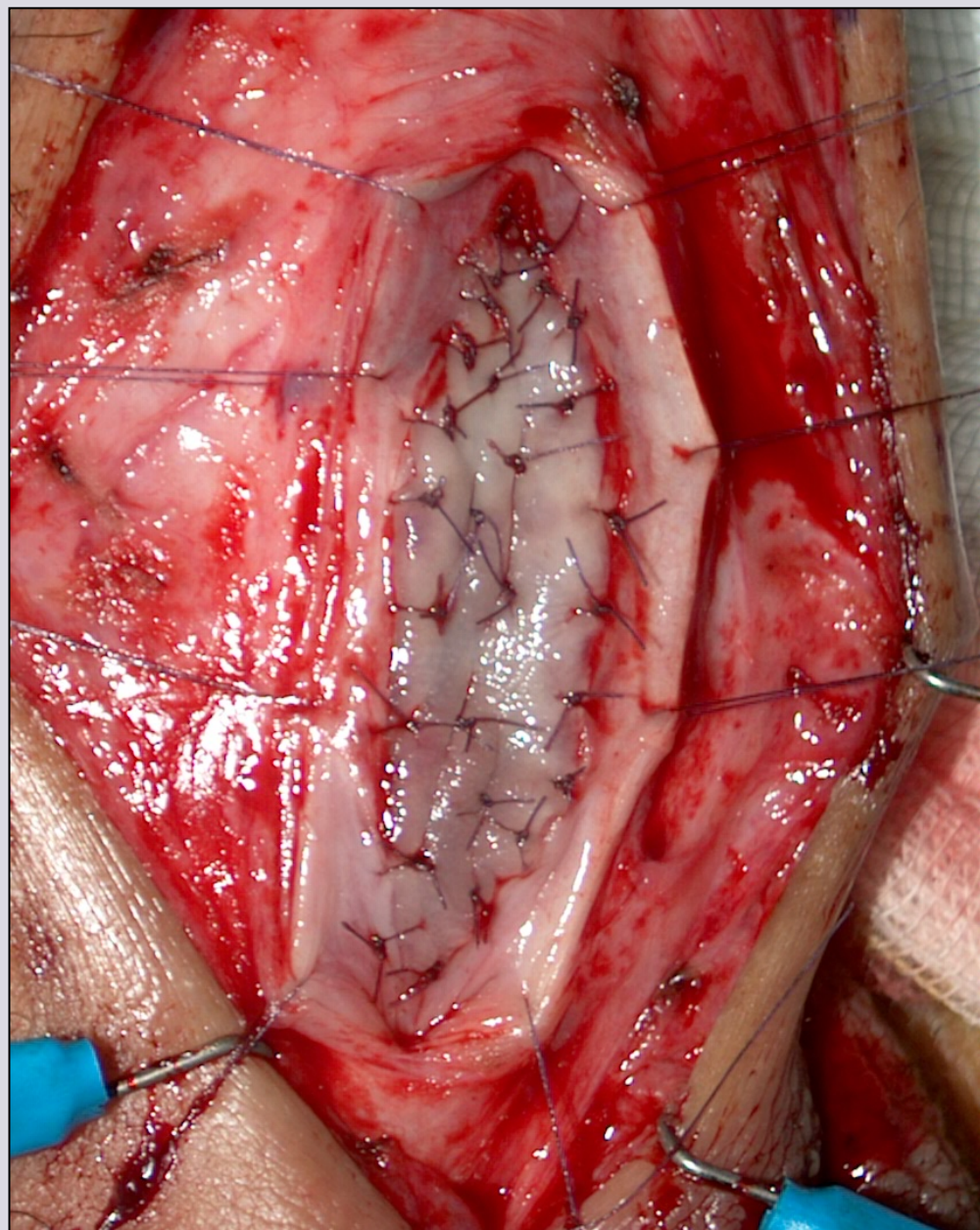
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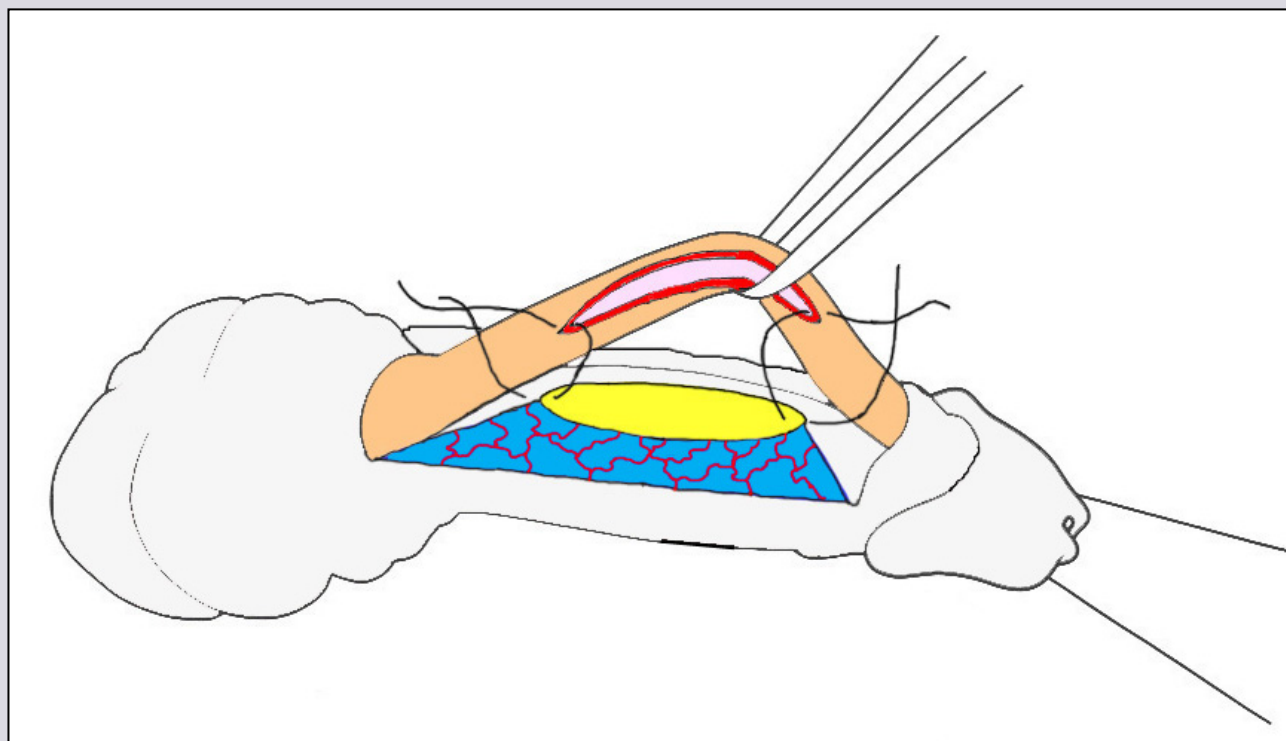




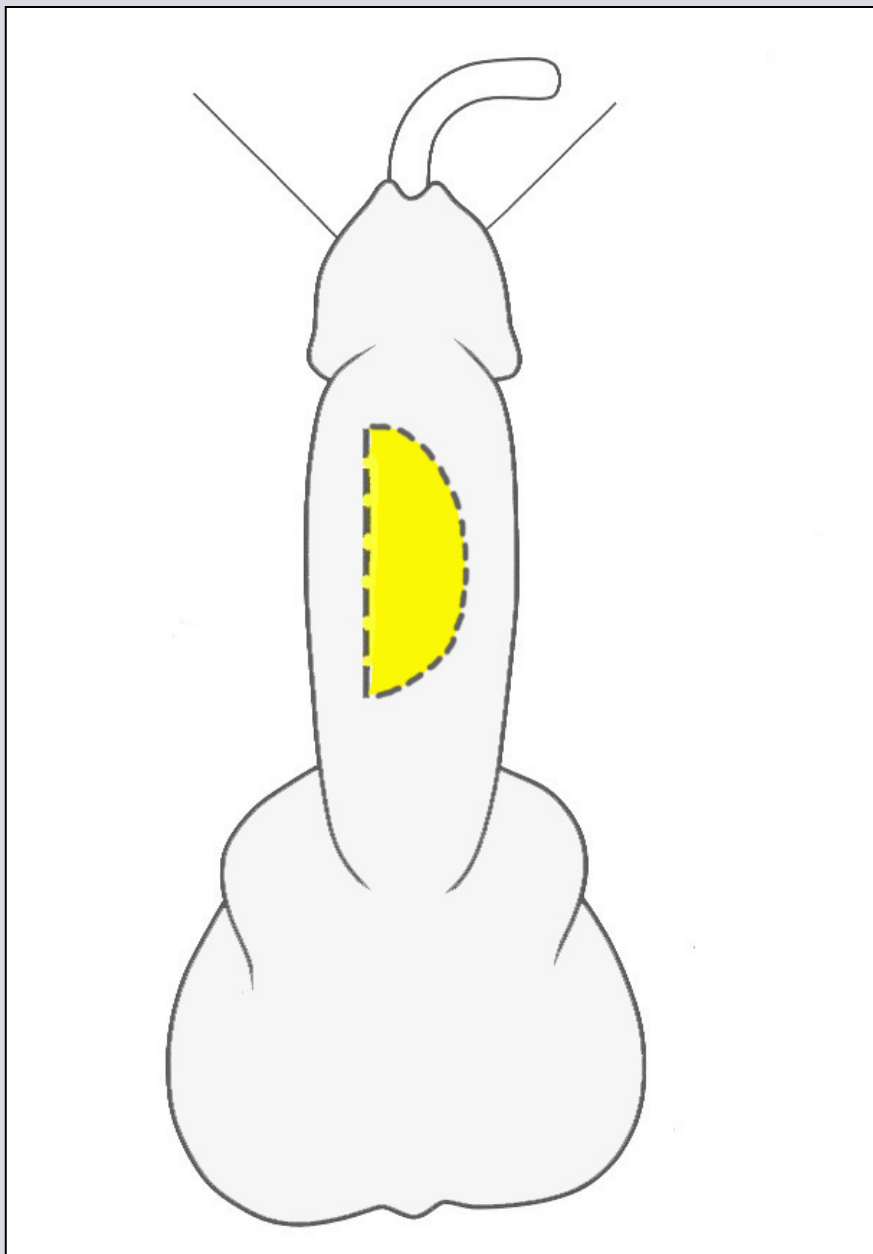
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# One-stage penile flap urethroplasty (narrow urethral plate)



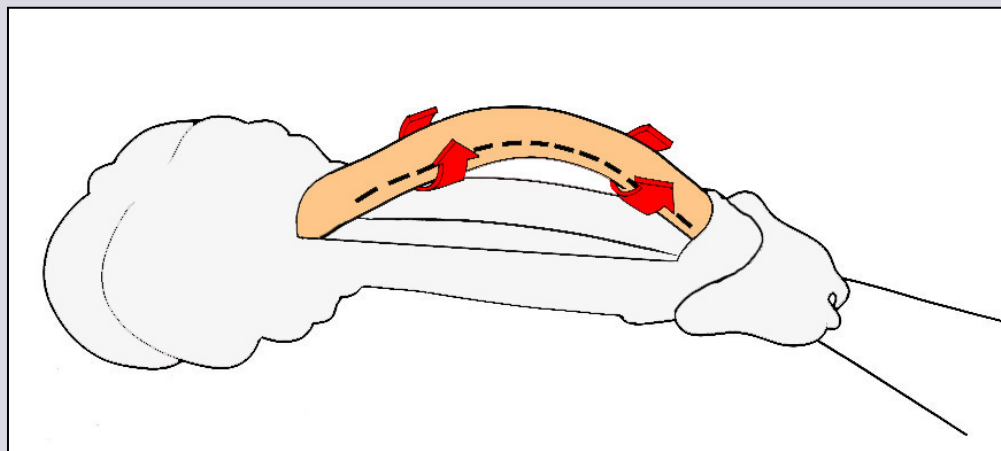
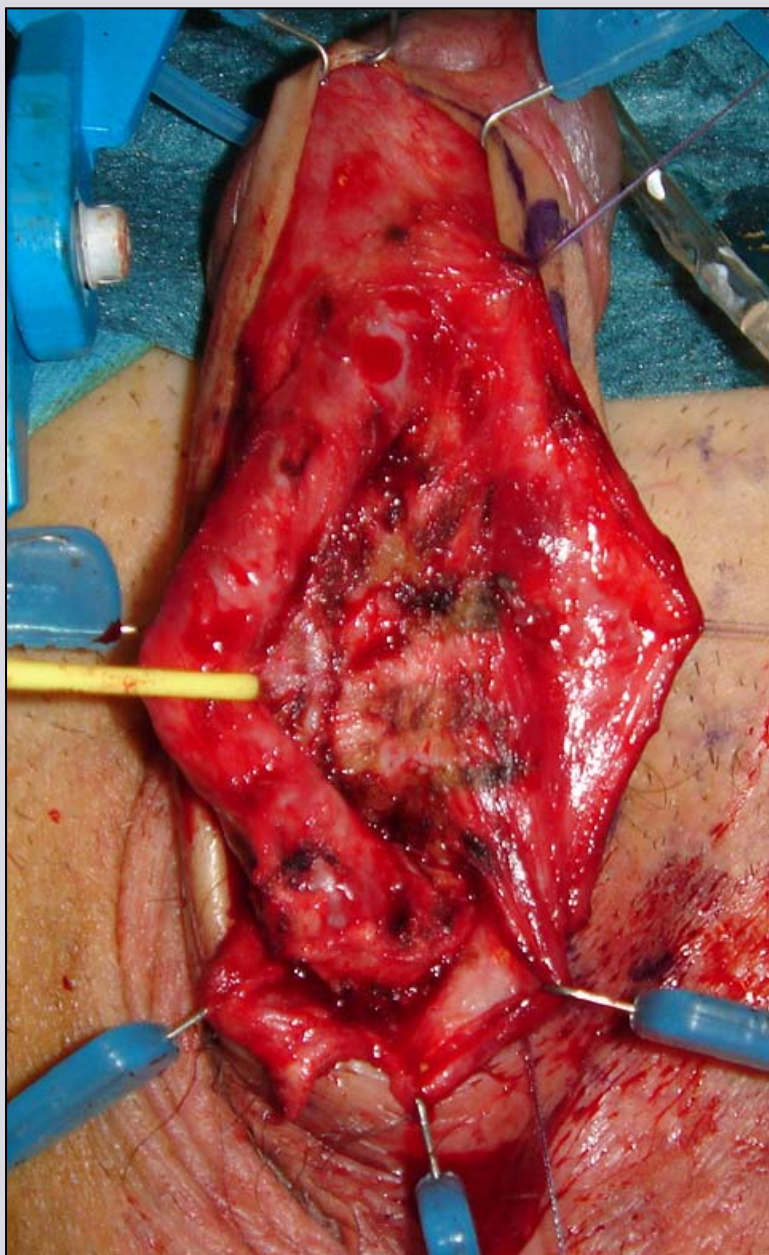
## Surgical technique



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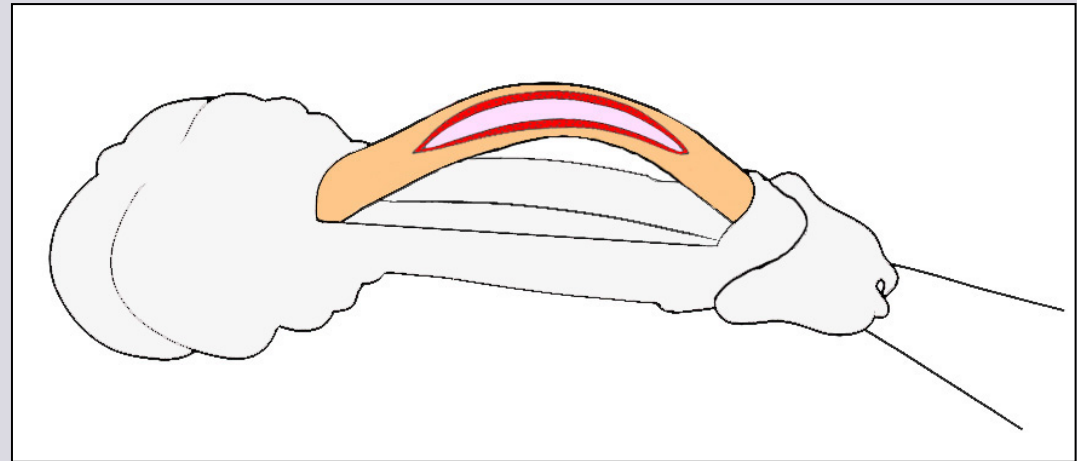
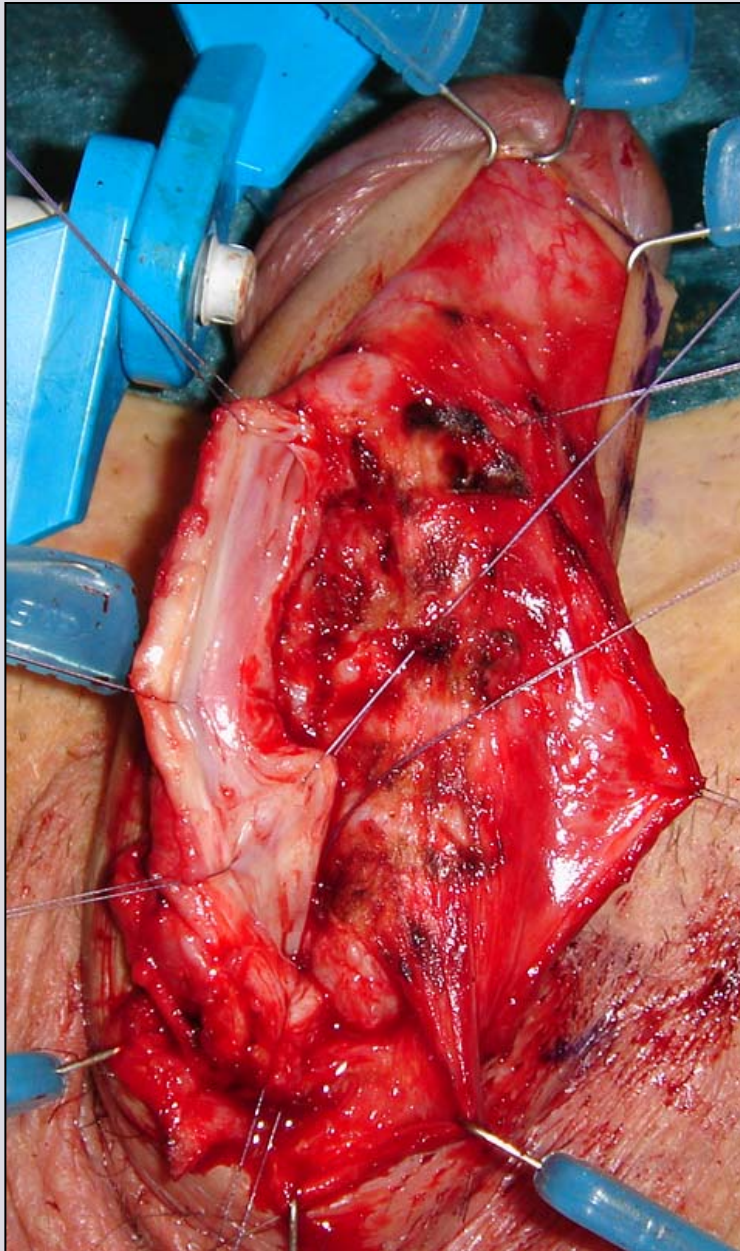
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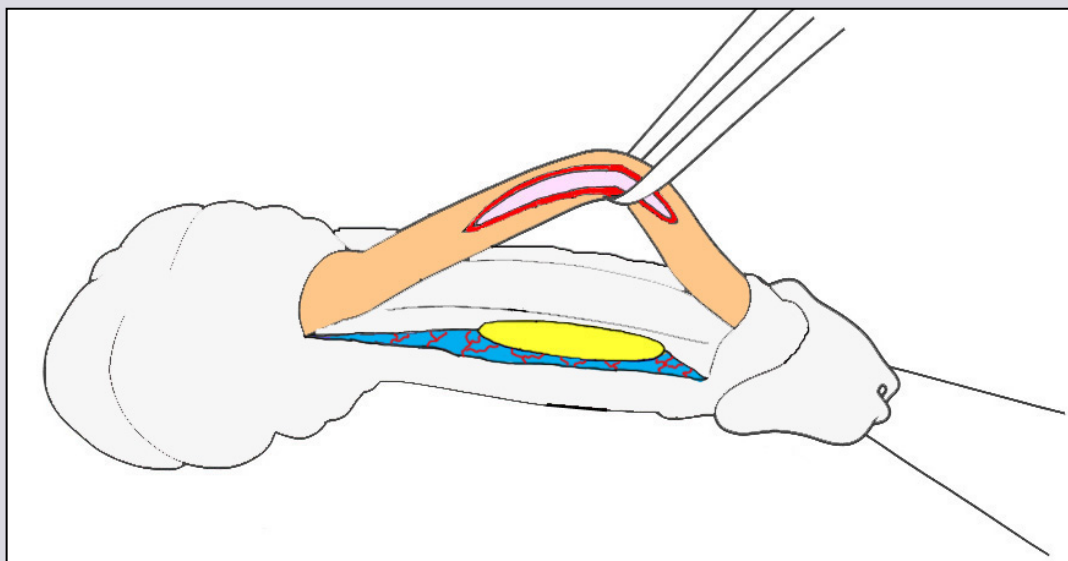
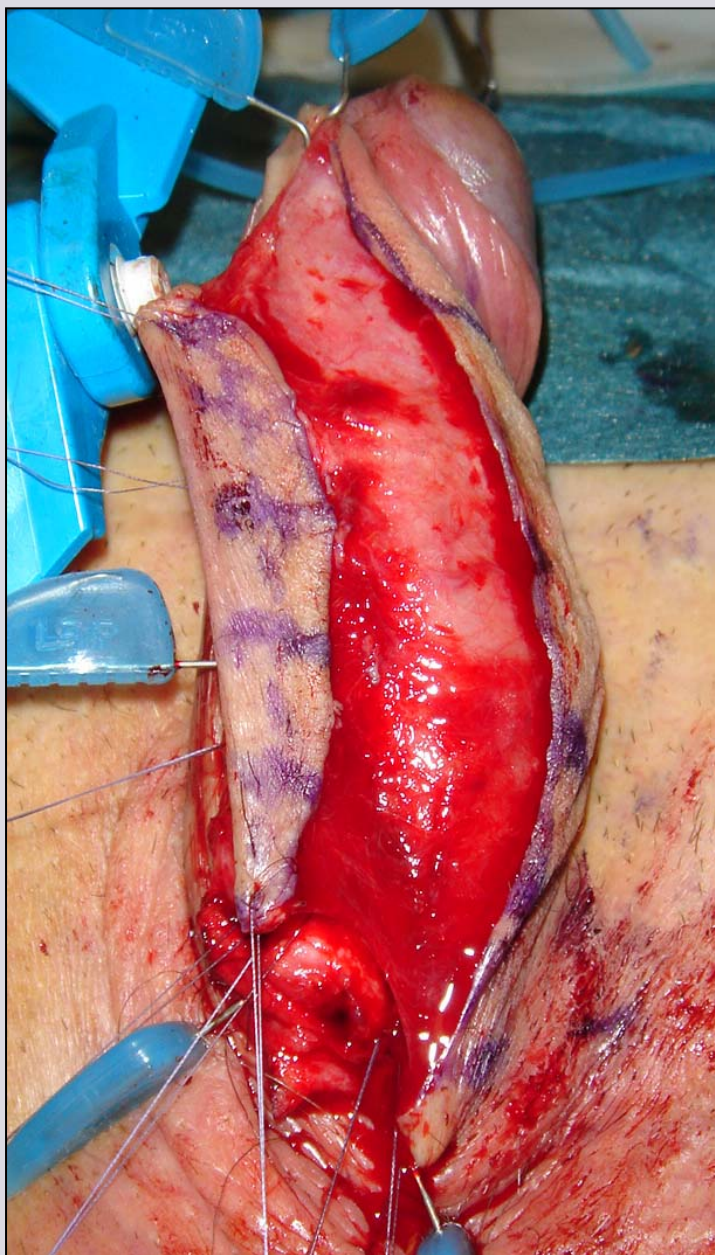
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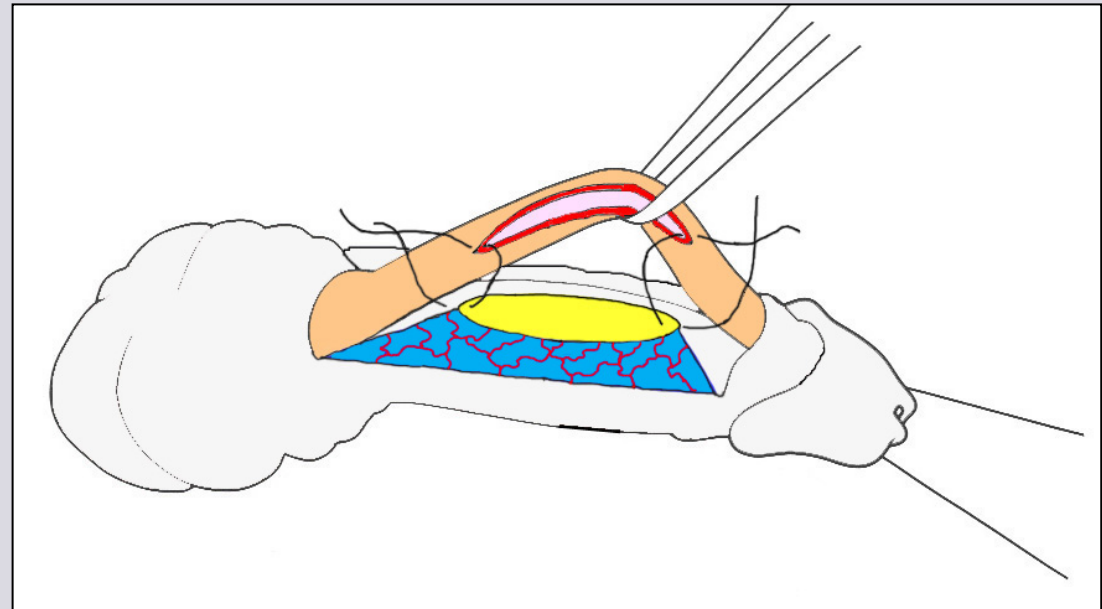
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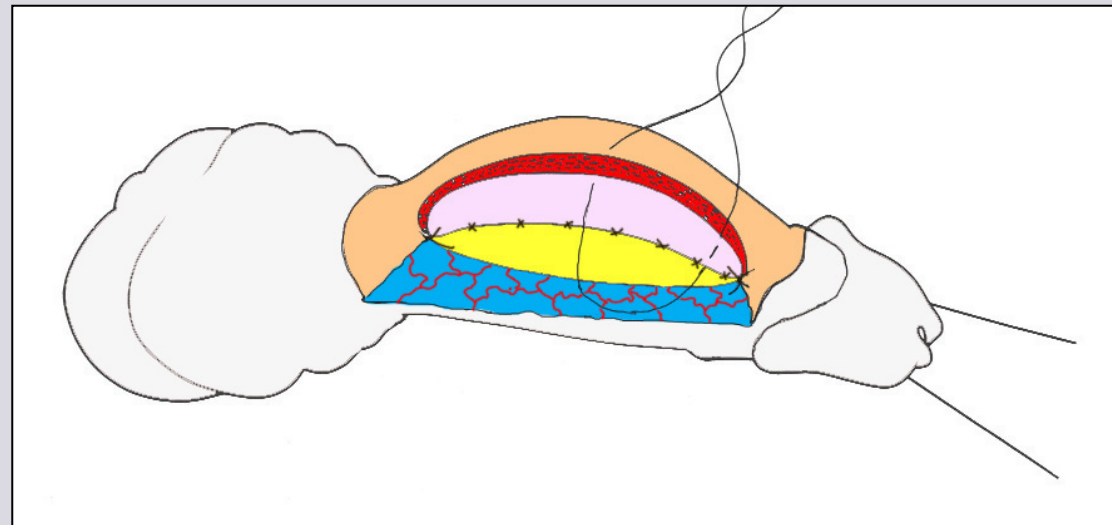
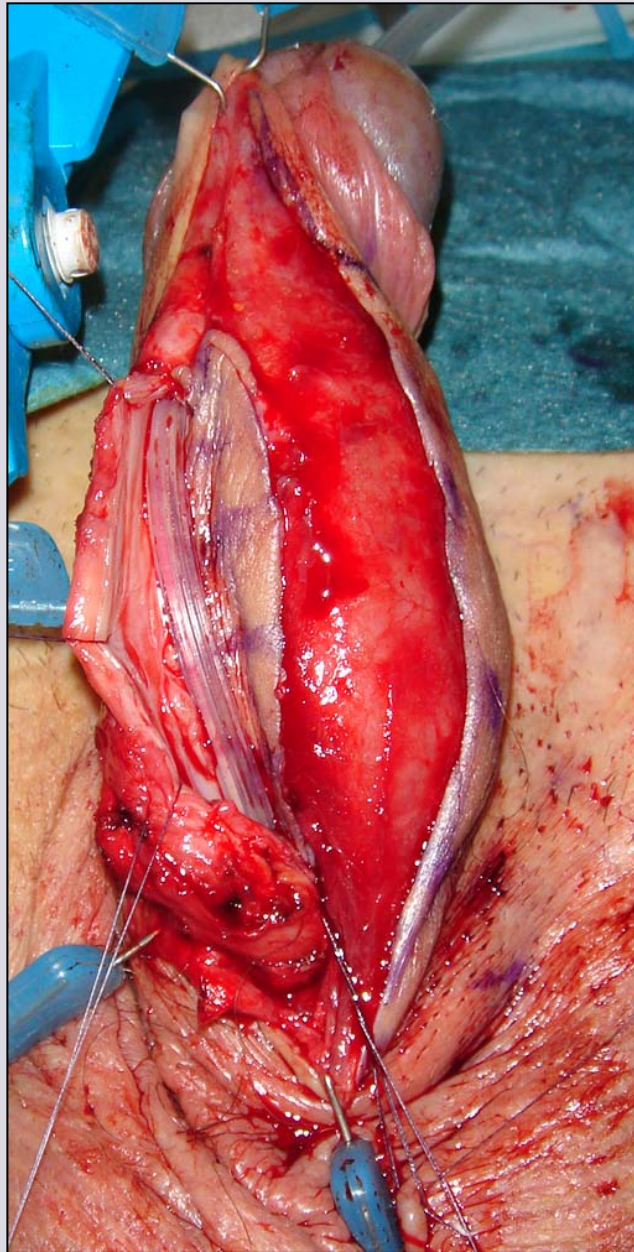
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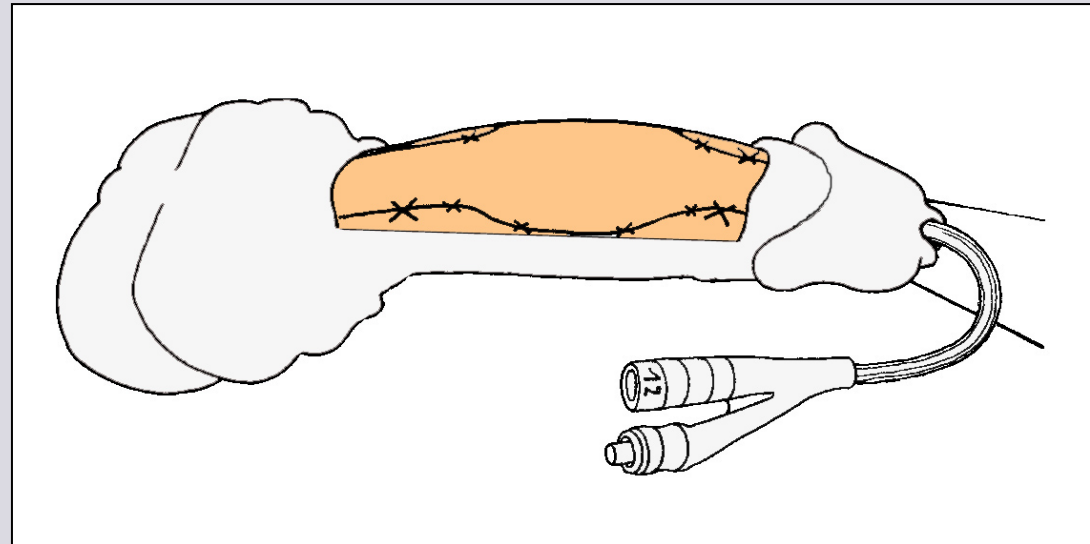
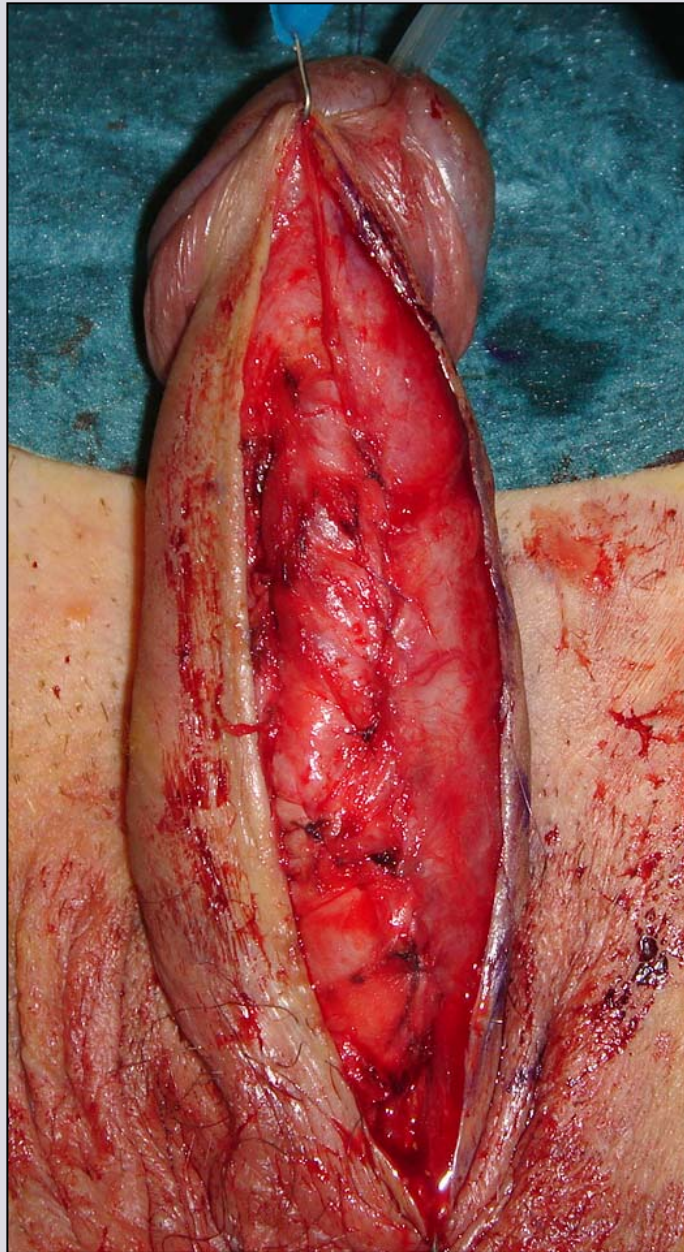
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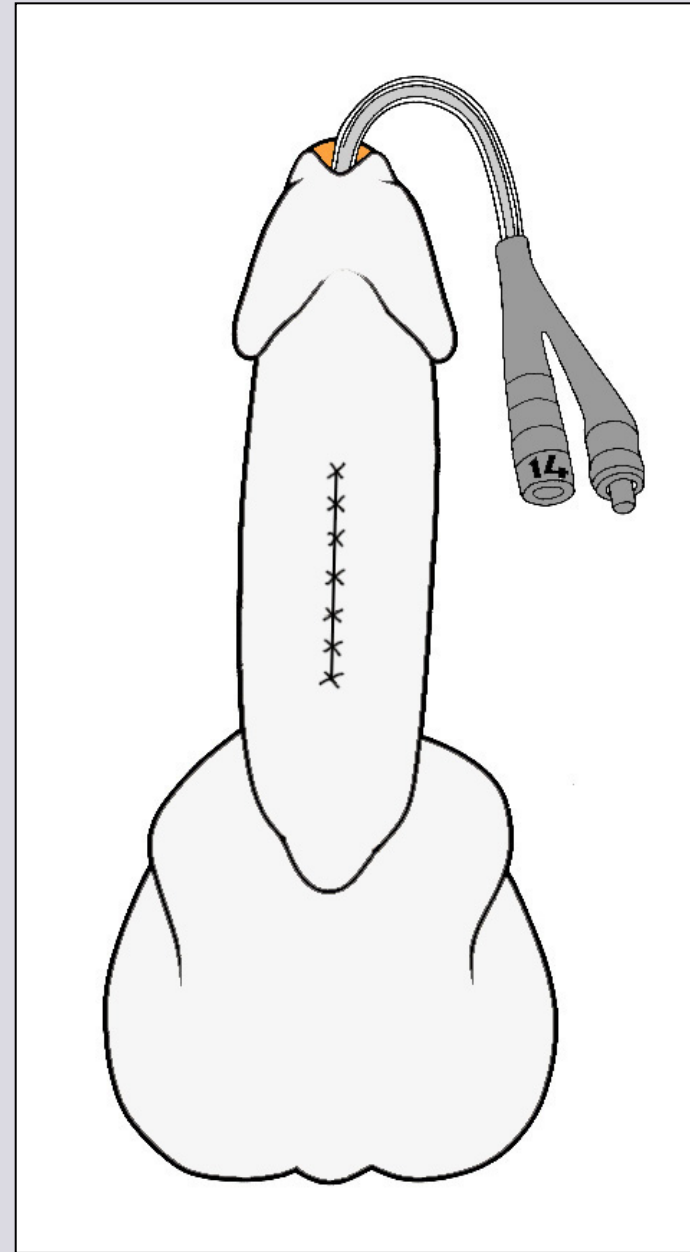
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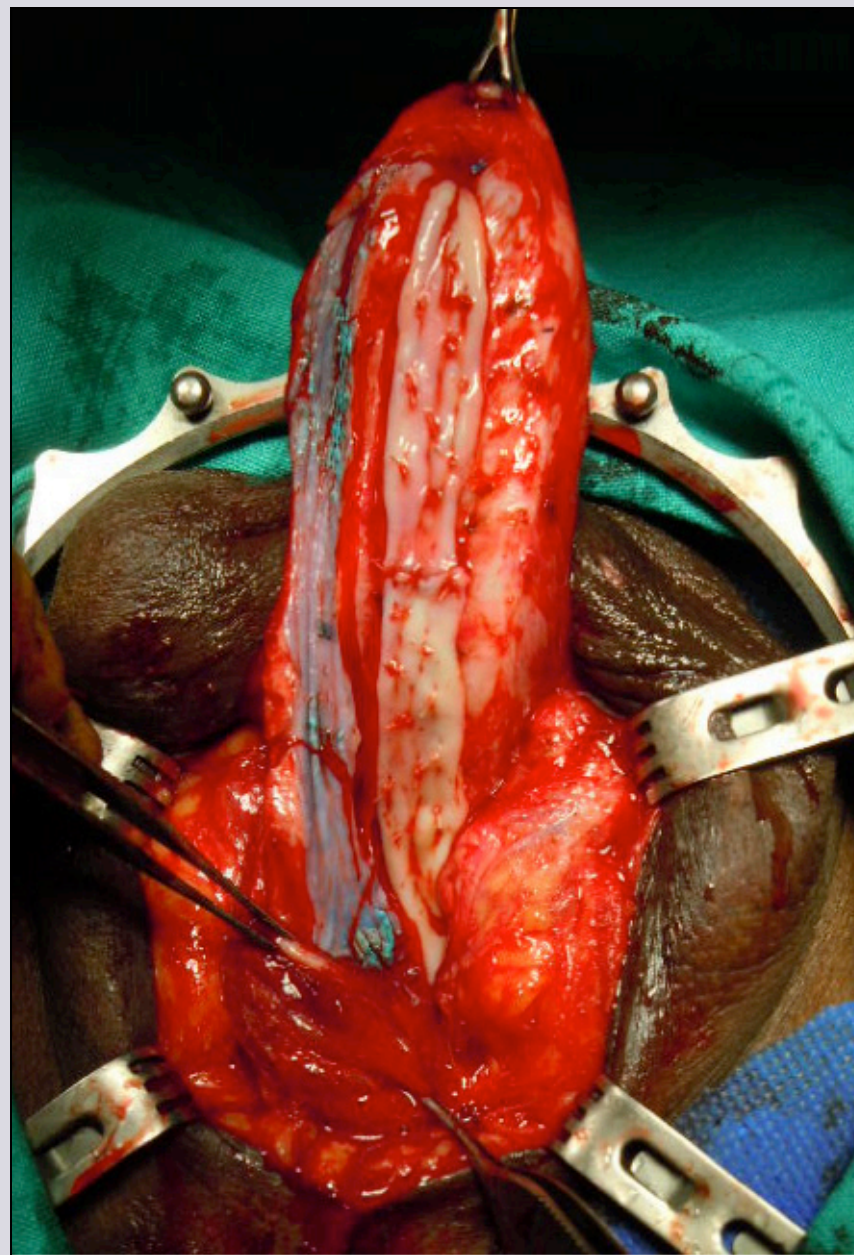
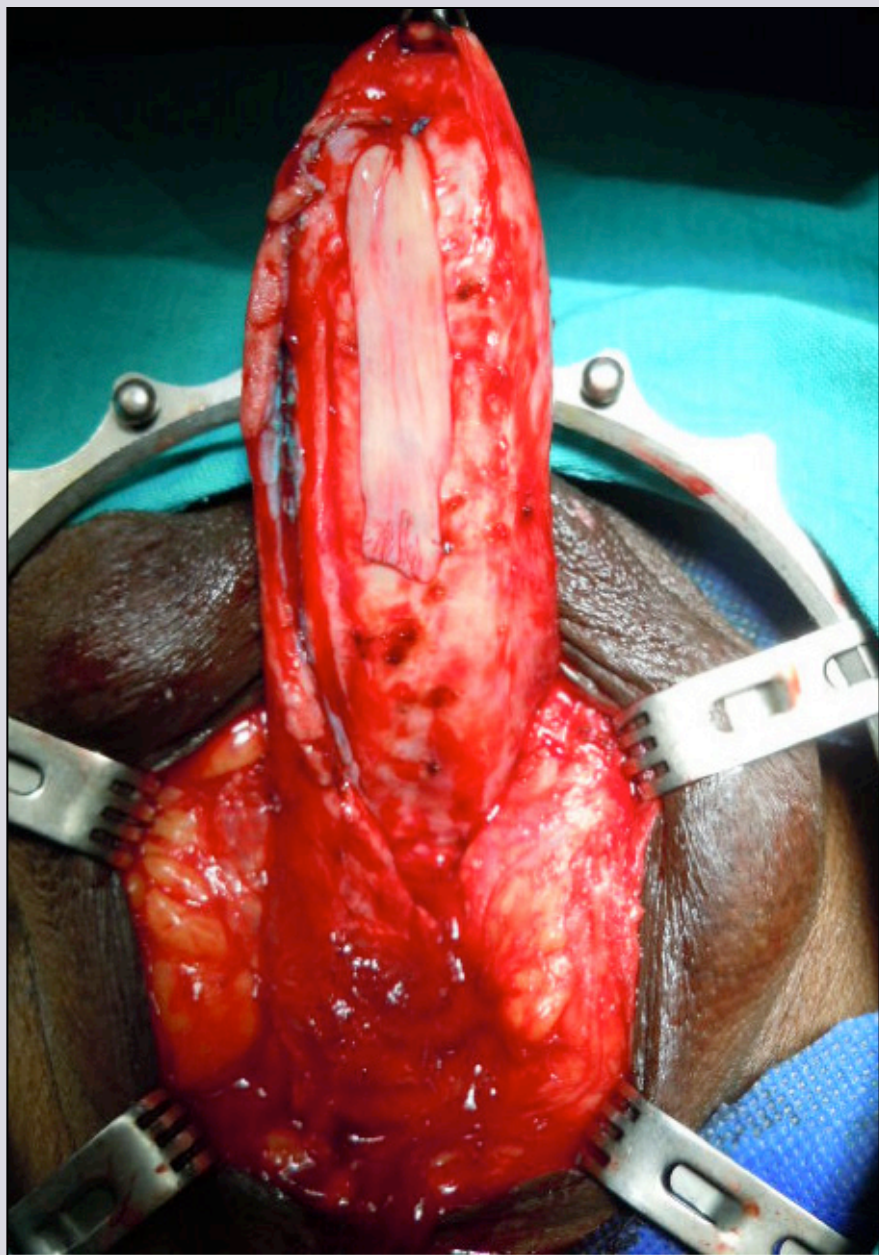
# One-stage penile urethroplasty: graft or flap ?

- ❖ NO sure data available from literature
- ❖ NO comparative studies including evaluation of post-operative sexual and aesthetic dysfunctions and patient satisfaction
- ❖ Surgeon background and preference



# One-stage Kulkarni urethroplasty by perineal approach

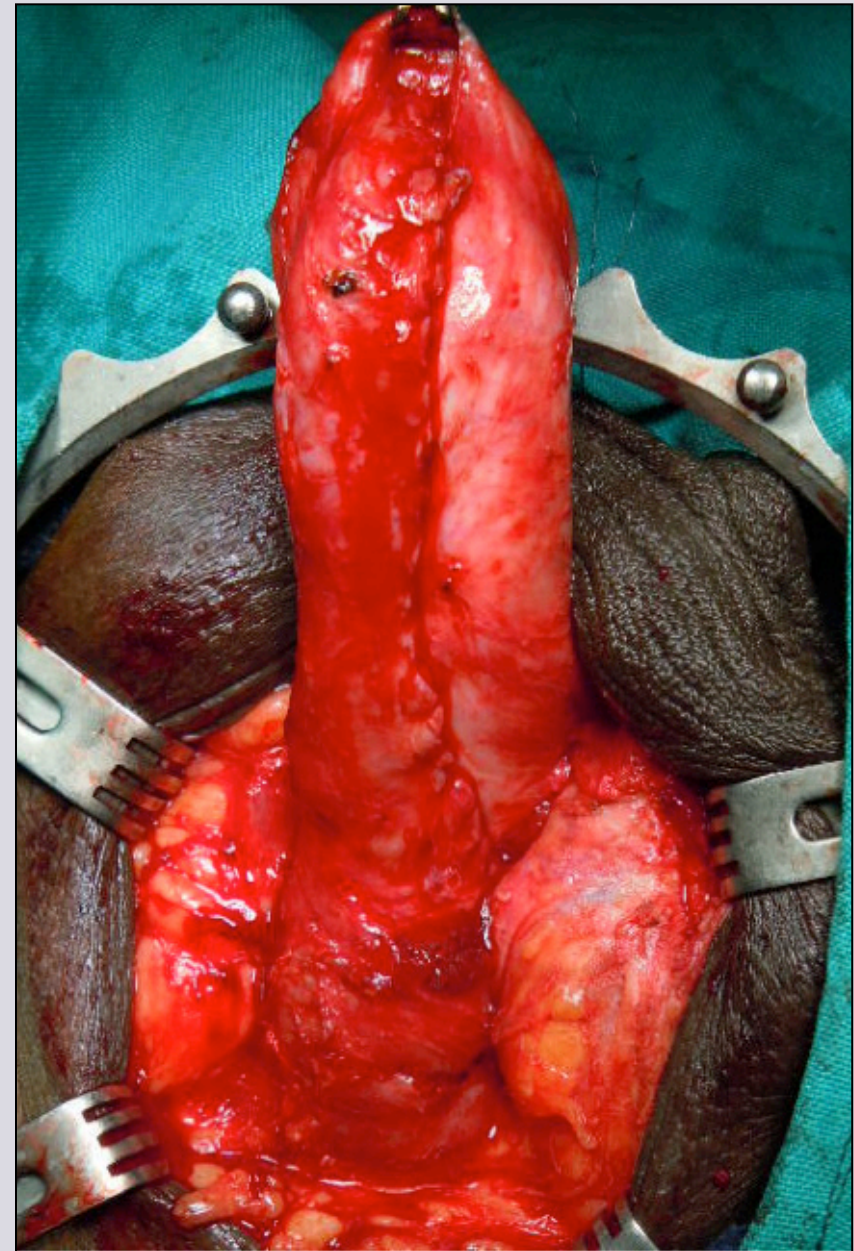
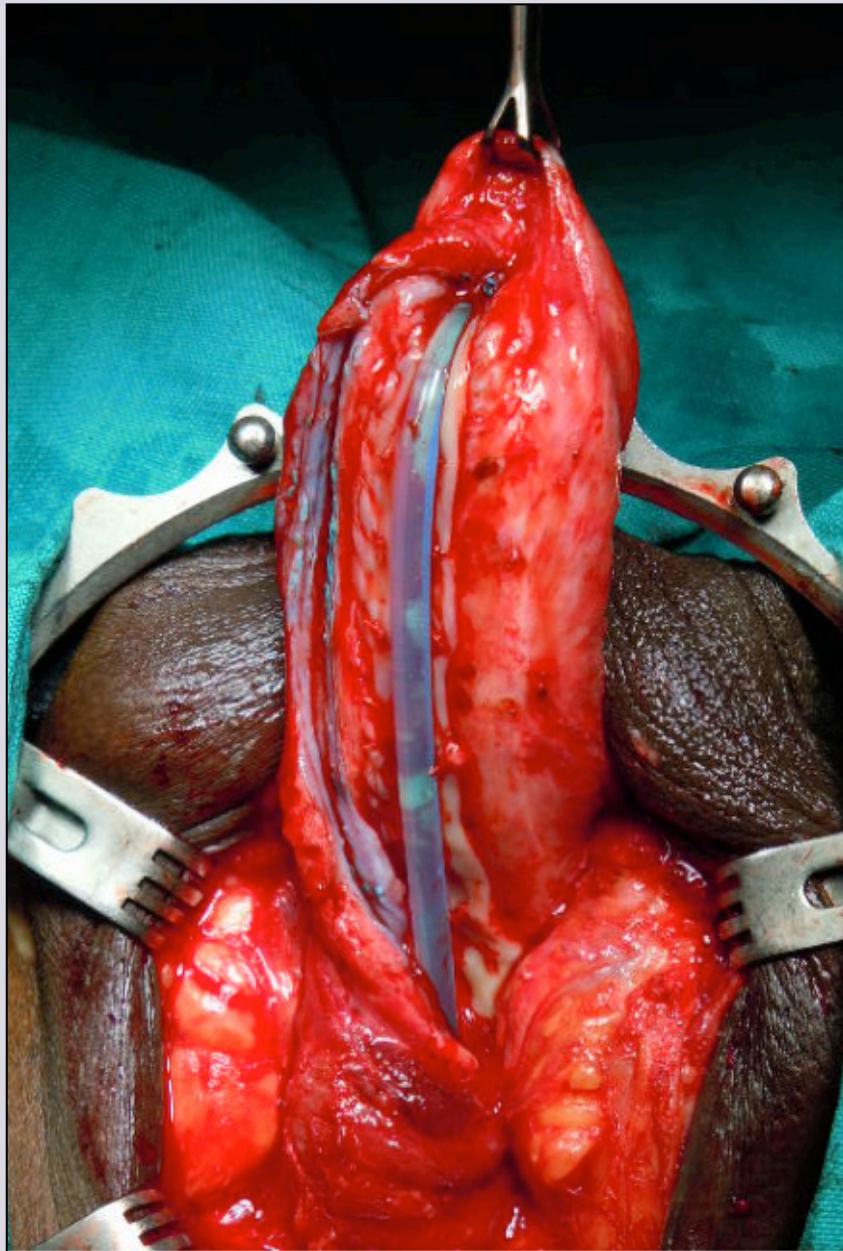
## Surgical technique



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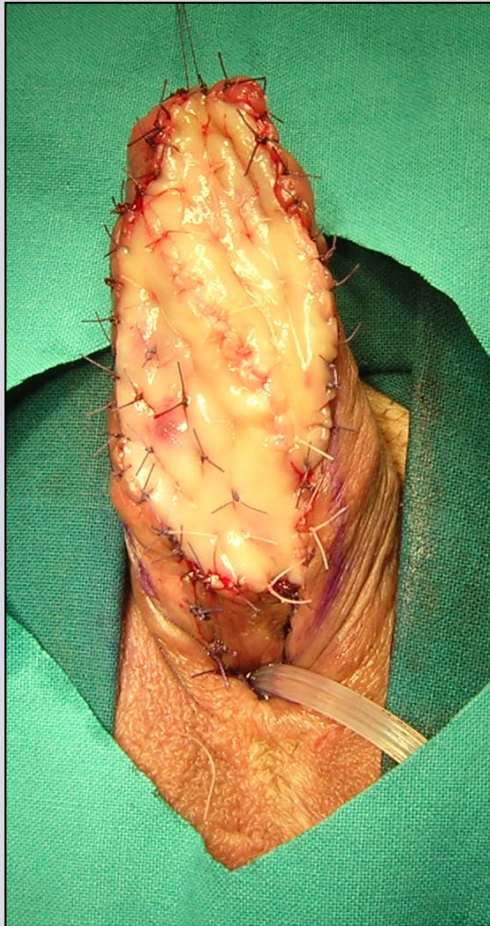
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# Surgical repair of complex penile urethral stricture

## Staged repair



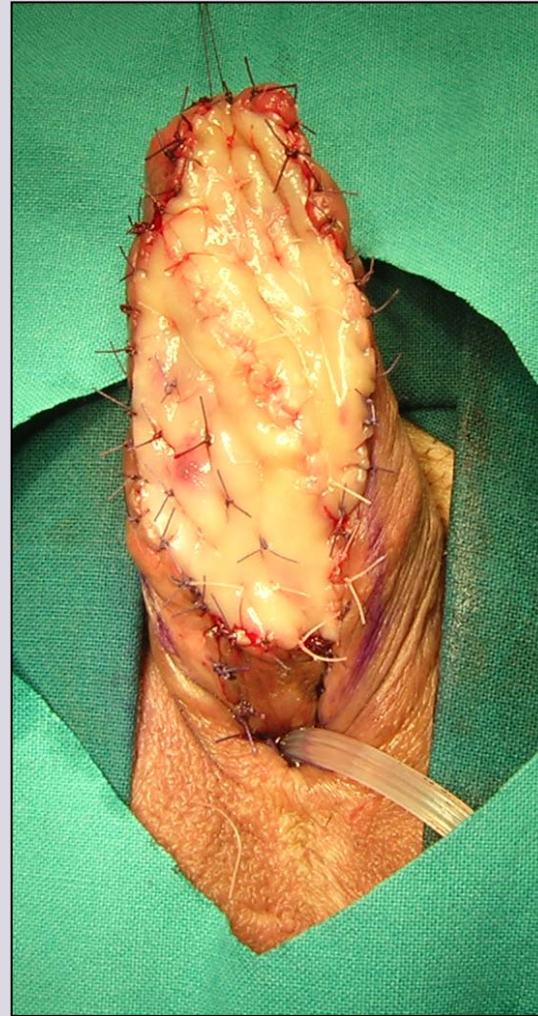




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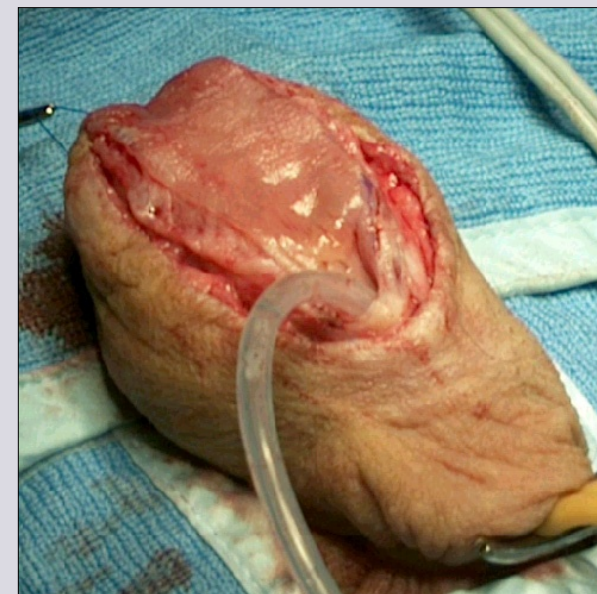


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## Second stage





## Second stage



**39% of patients require new surgical revision  
of the grafted area**



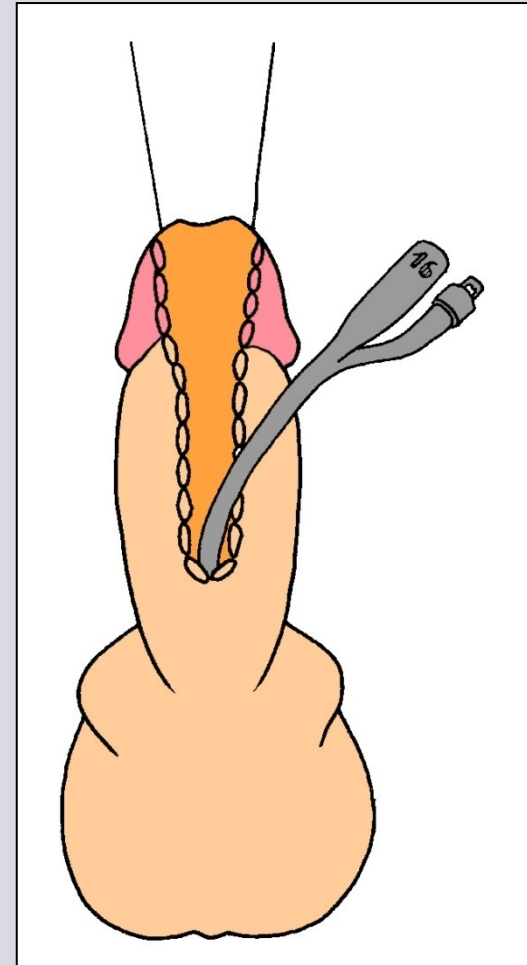
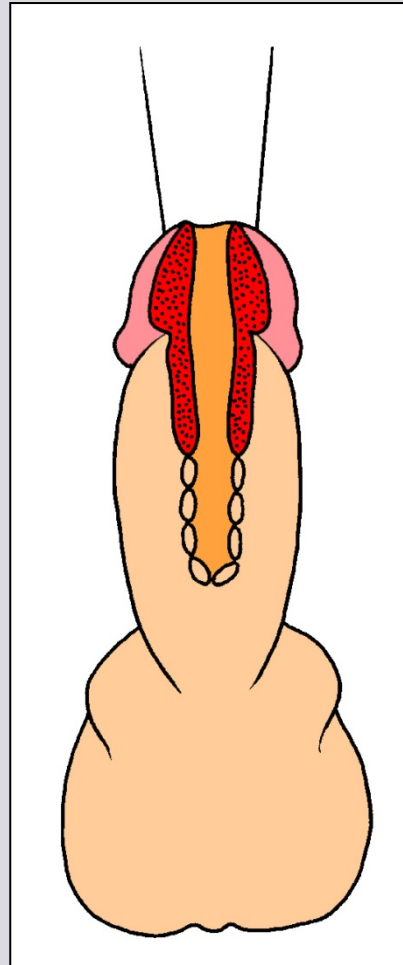
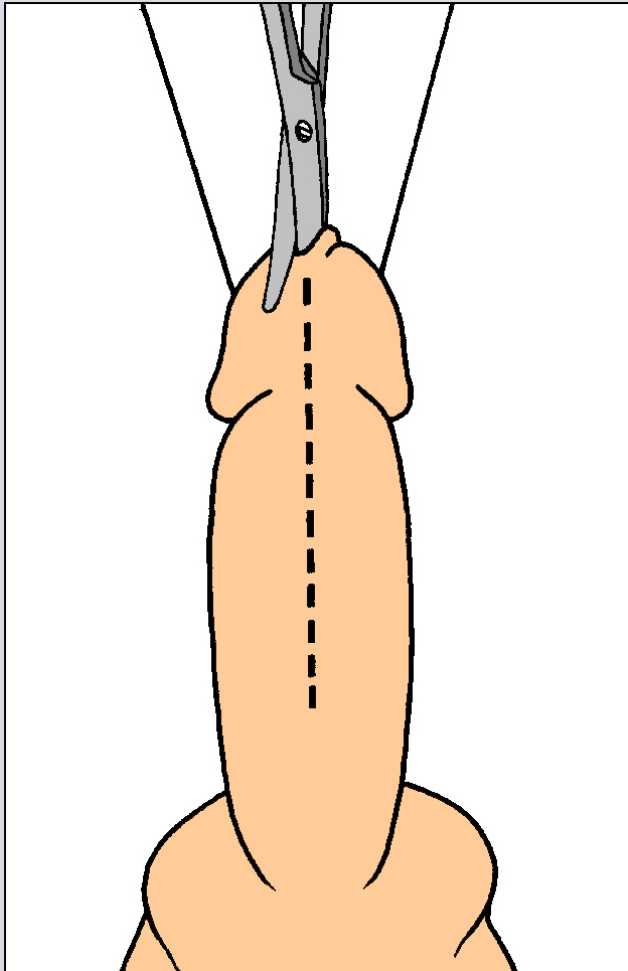
**Eur Urol 2006; 49: 887-895**

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# First stage – Johanson's urethroplasty

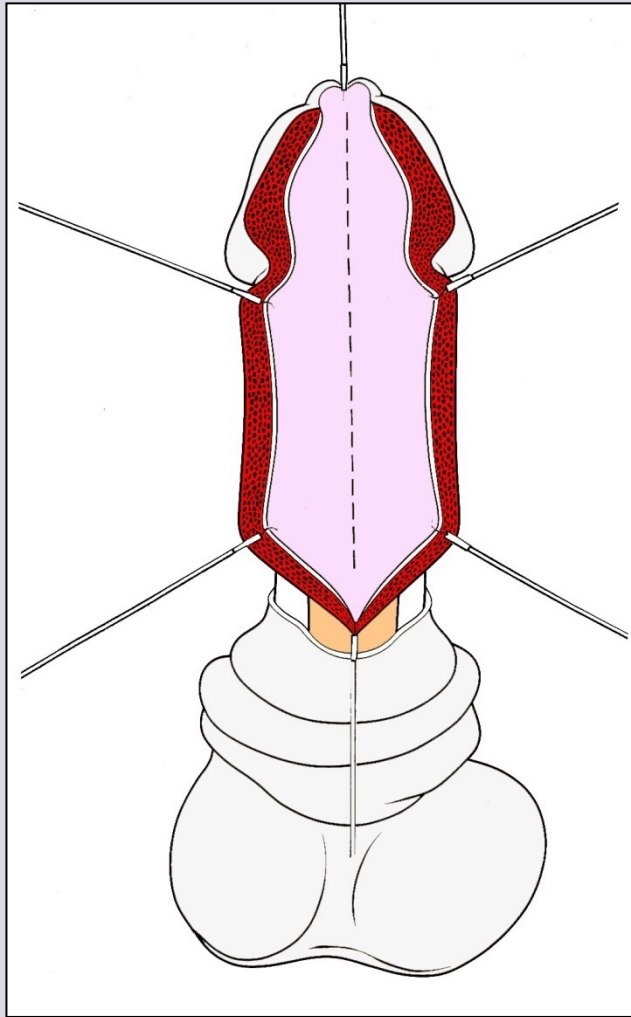


# First stage – Johanson's urethroplasty

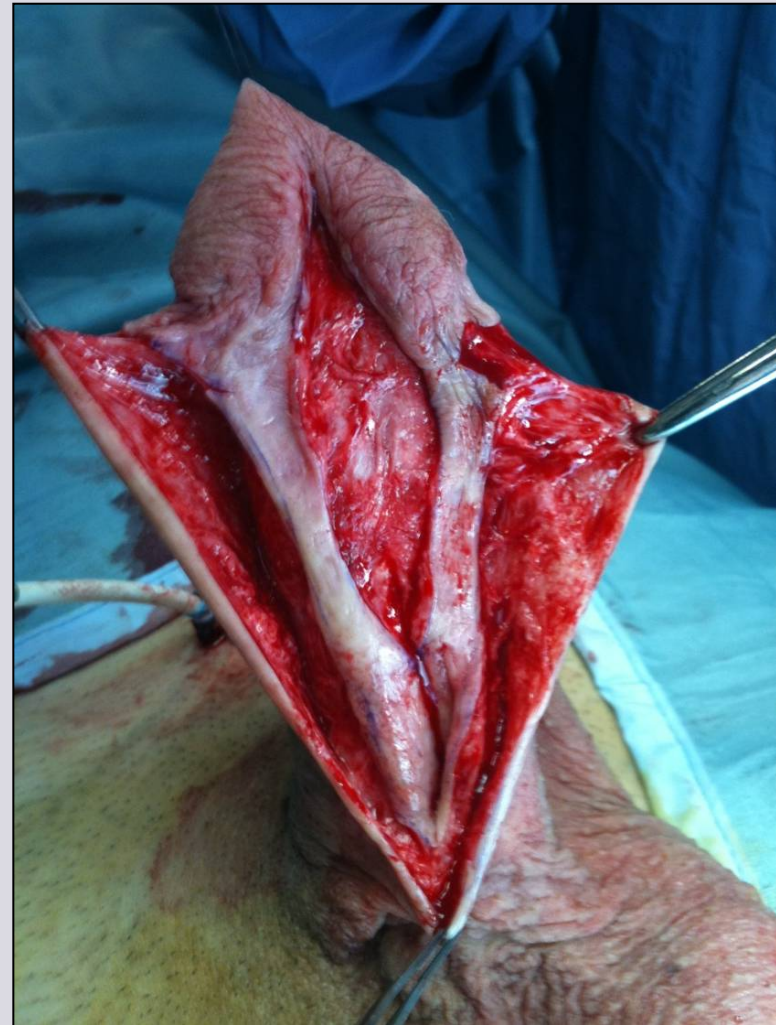
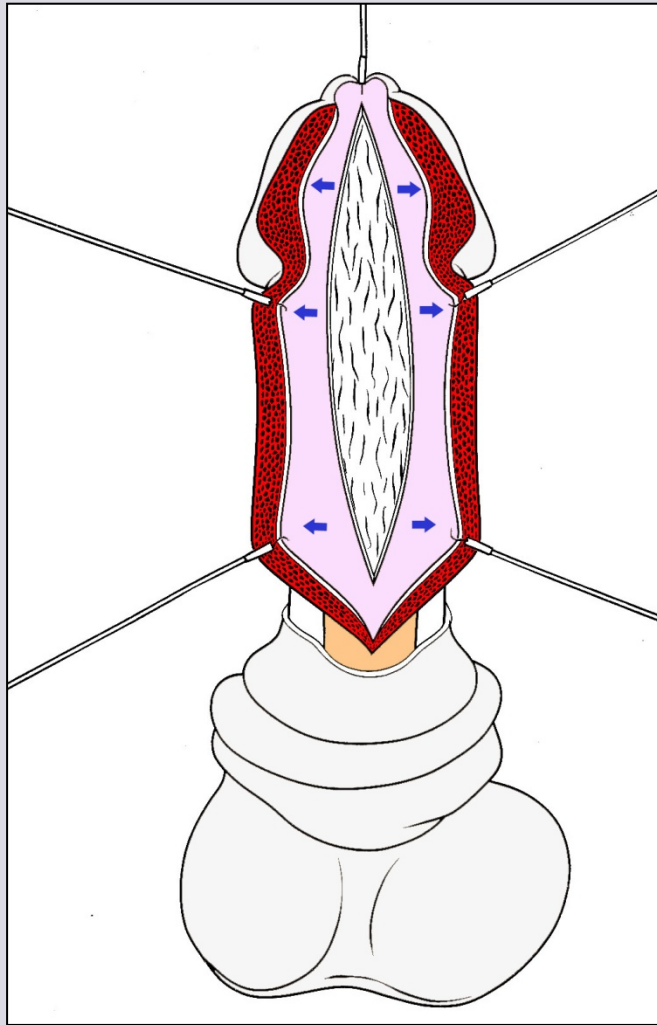




## Second stage – Oral graft inlay urethroplasty

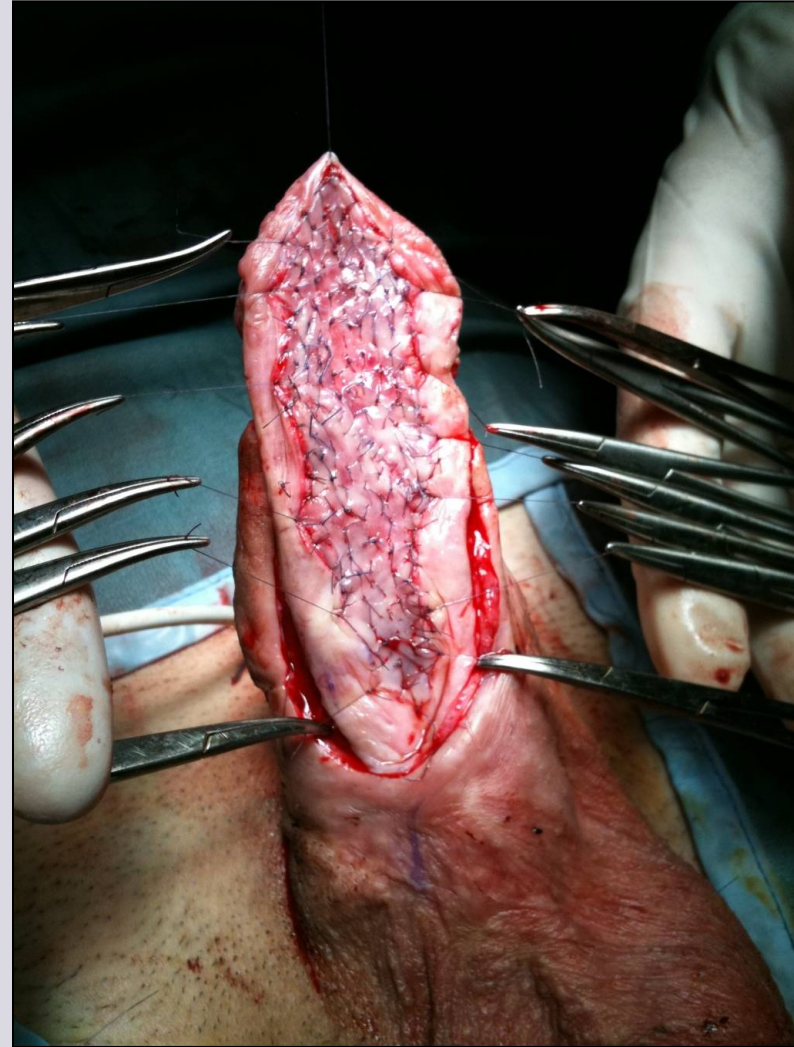
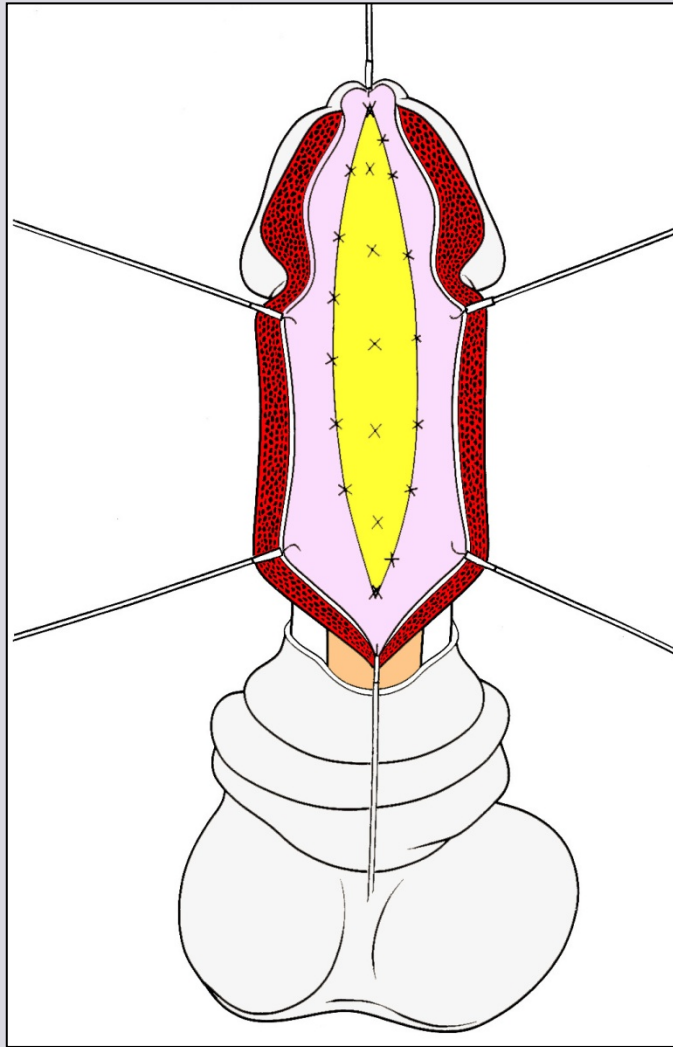


## Second stage – Oral graft inlay urethroplasty

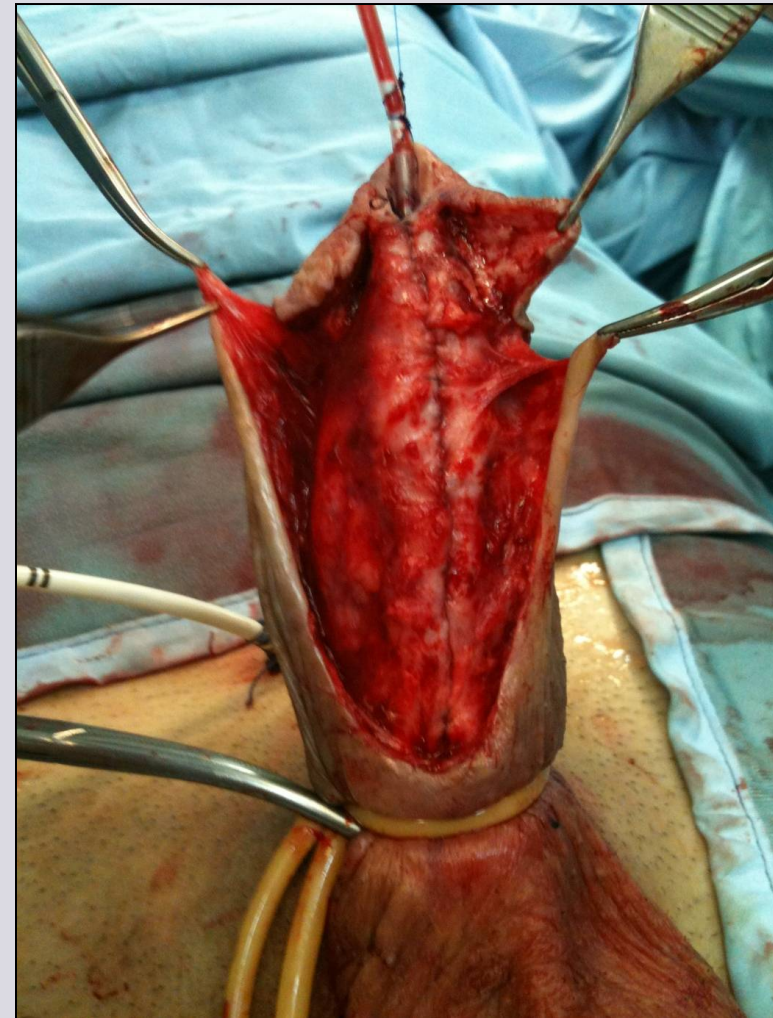
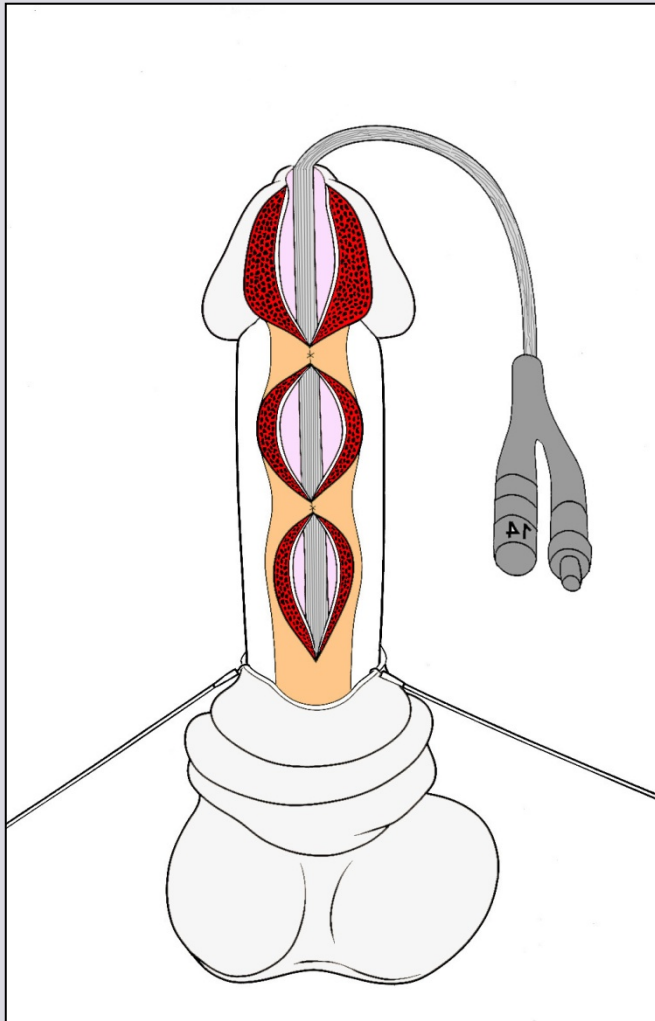




## Second stage – Oral graft inlay urethroplasty

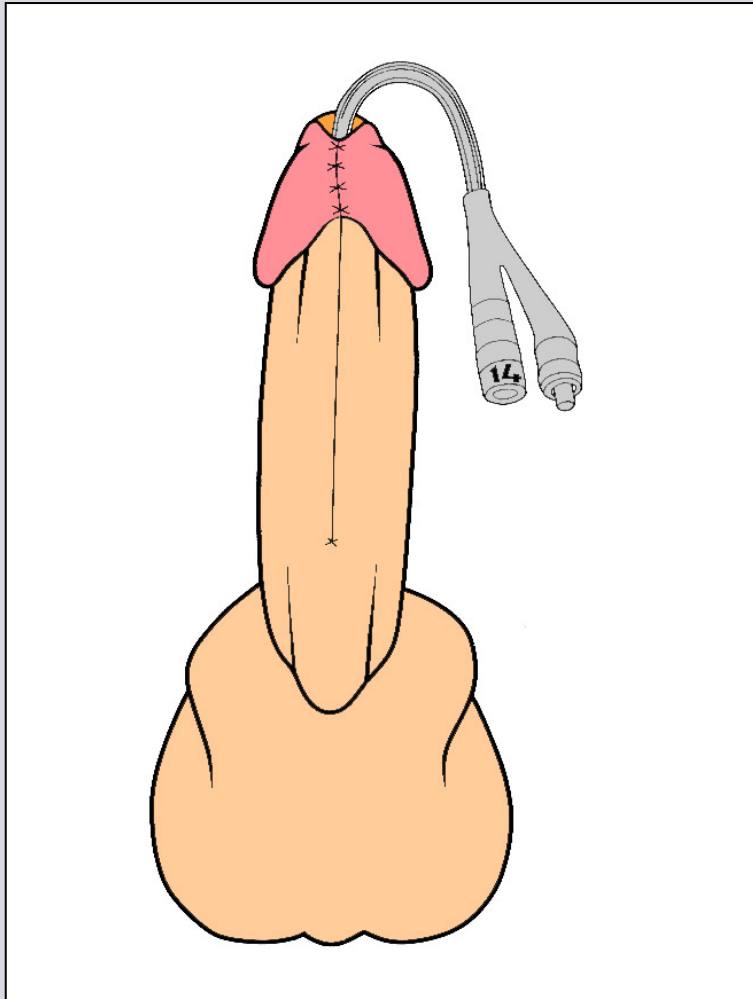


## Second stage – Oral graft inlay urethroplasty





## Second stage – Oral graft inlay urethroplasty



## Second stage – Oral graft inlay urethroplasty



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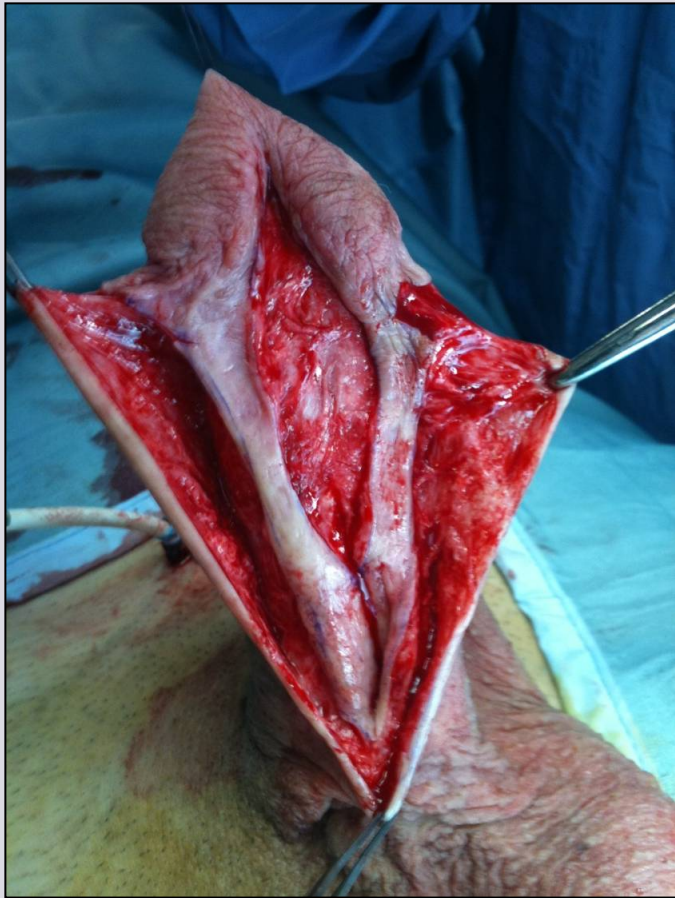
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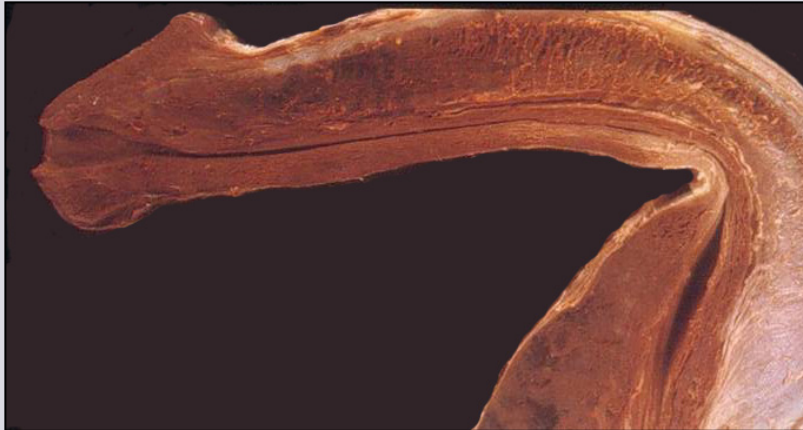


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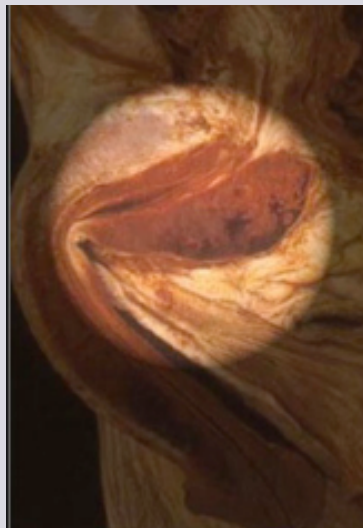
# New classification of anterior urethral strictures



**Penile**

**Simple**

**Complex**



**Bulbar**

**Traumatic**

**Non-traumatic**

# Etiology of bulbar urethral stricture



**Catheter**



**Instrumentation**



**Infection**

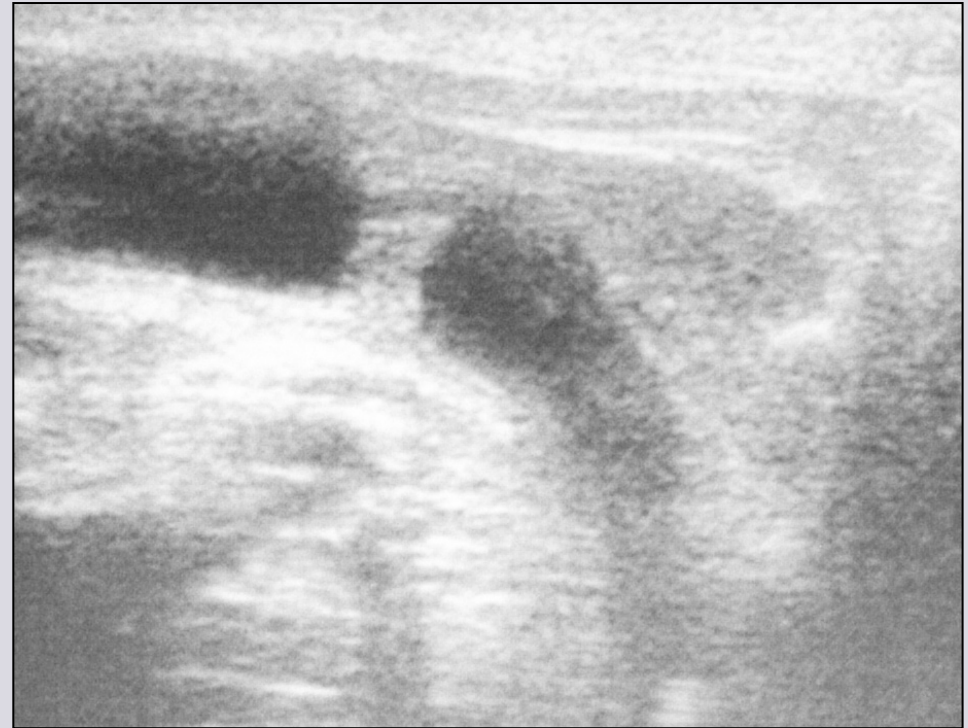
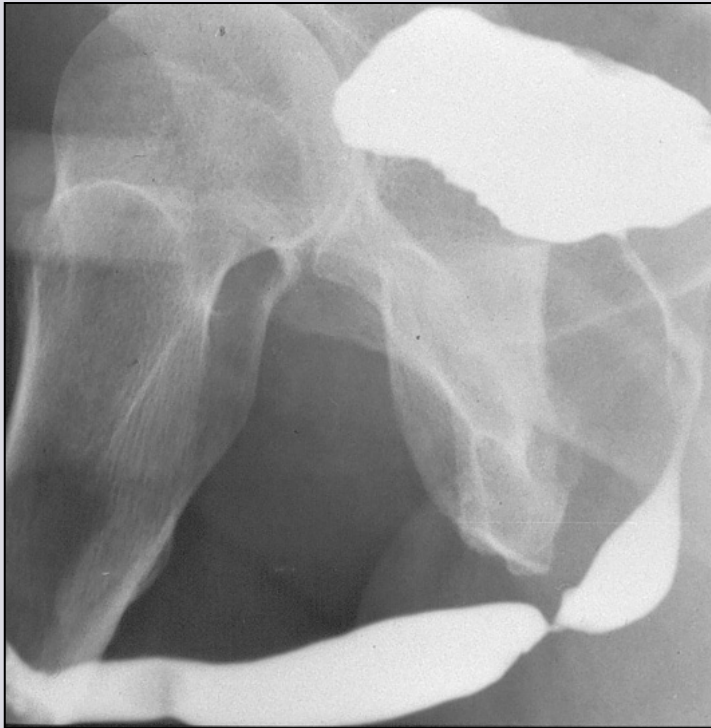
**Idiopathic**  
**Radiotherapy**  
**Other**



**Trauma**

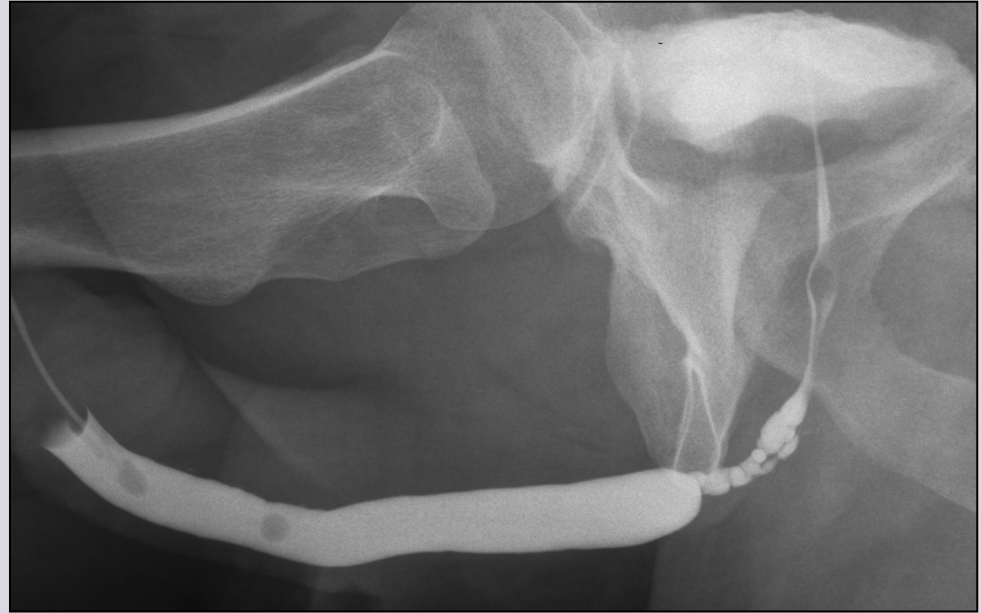
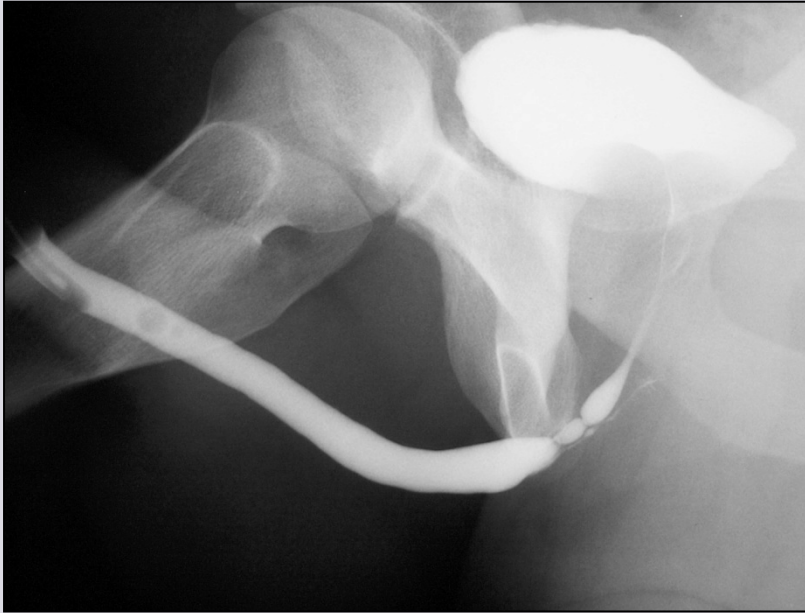


# Traumatic bulbar urethral stricture



1. Obliterative stricture
2. No practicable urethral plate
3. Scar tissue
4. Short or long fibrous gap

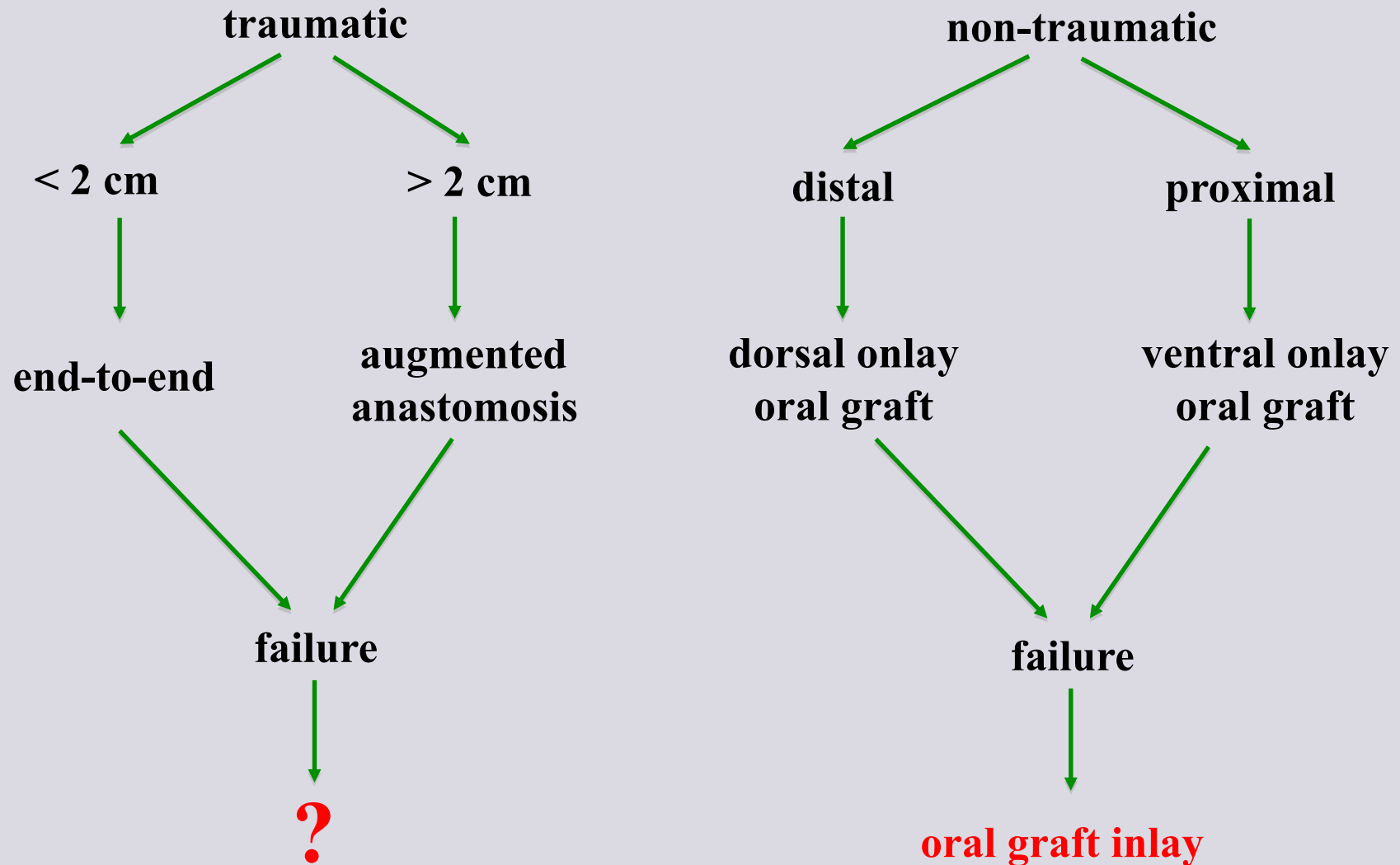
# Non-traumatic bulbar urethral stricture



1. Etiology: idiopathic – catheter - instrumentation –infection – other
2. Practicable urethral plate (3 Fr. Sensor guidewire)
3. No fibrous gap

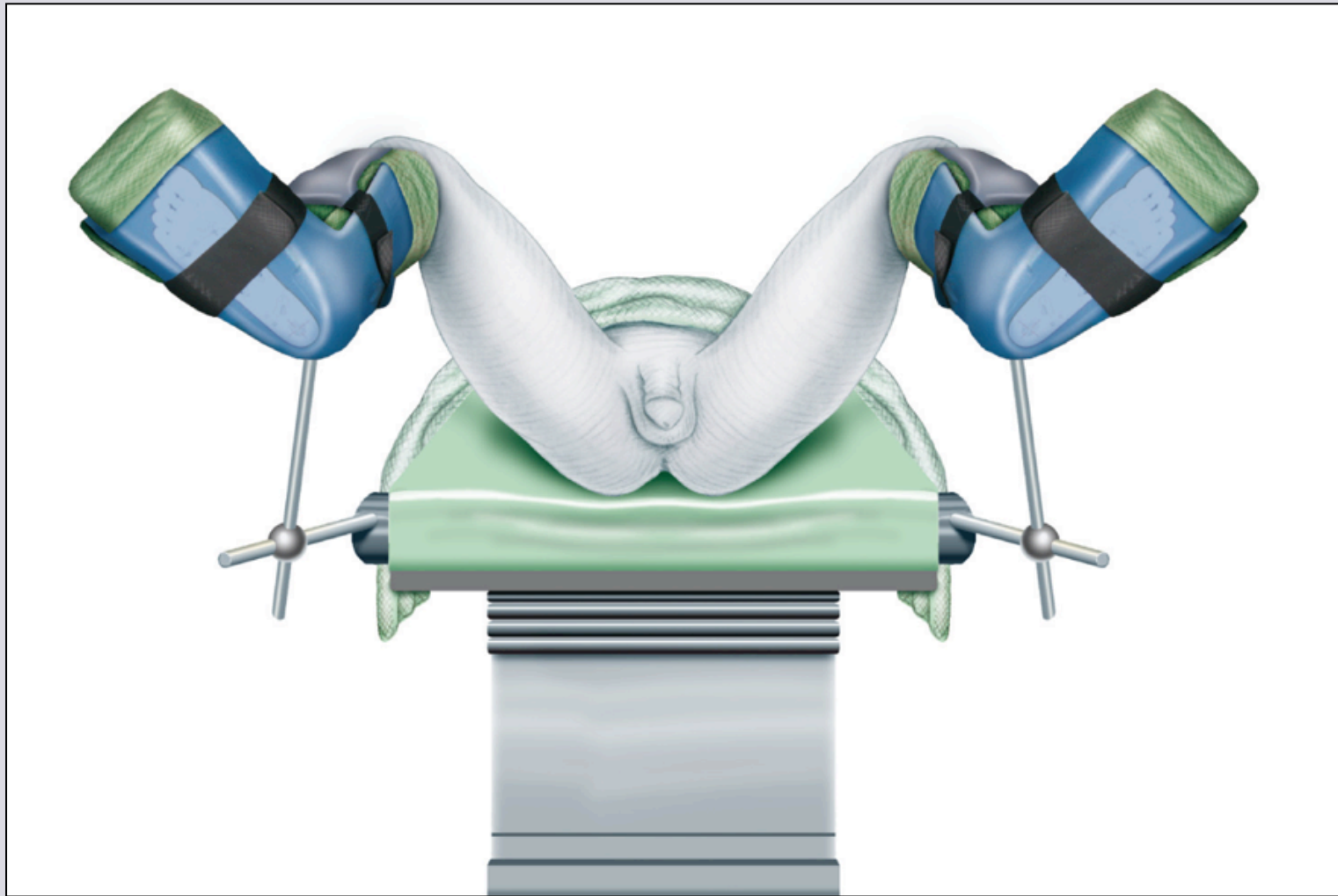


# Bulbar urethral stricture



# **Reconstruction of the bulbar urethra in traumatic stricture**





**Simple lithotomy position**



**Allen stirrups**

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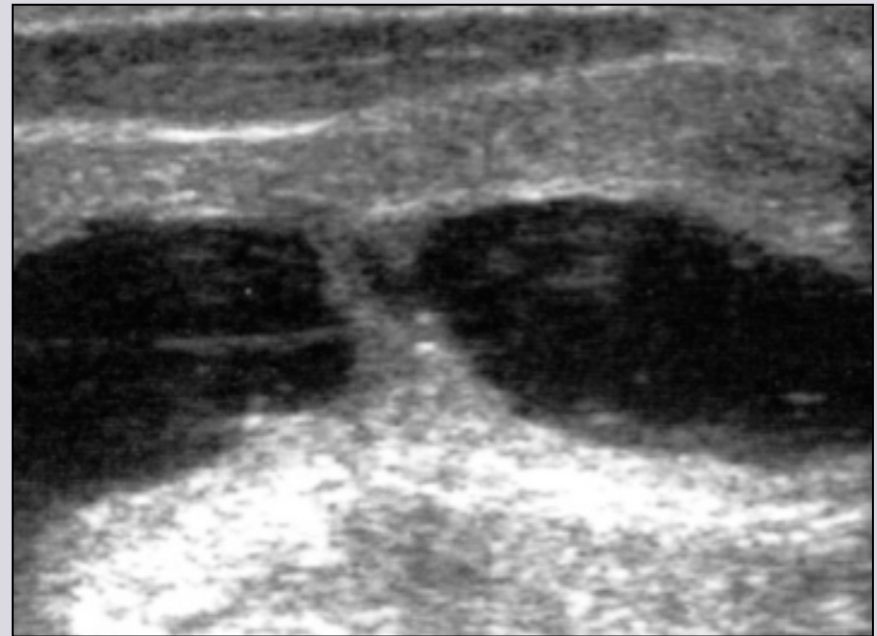


## Sequential inflatable compression sleeves

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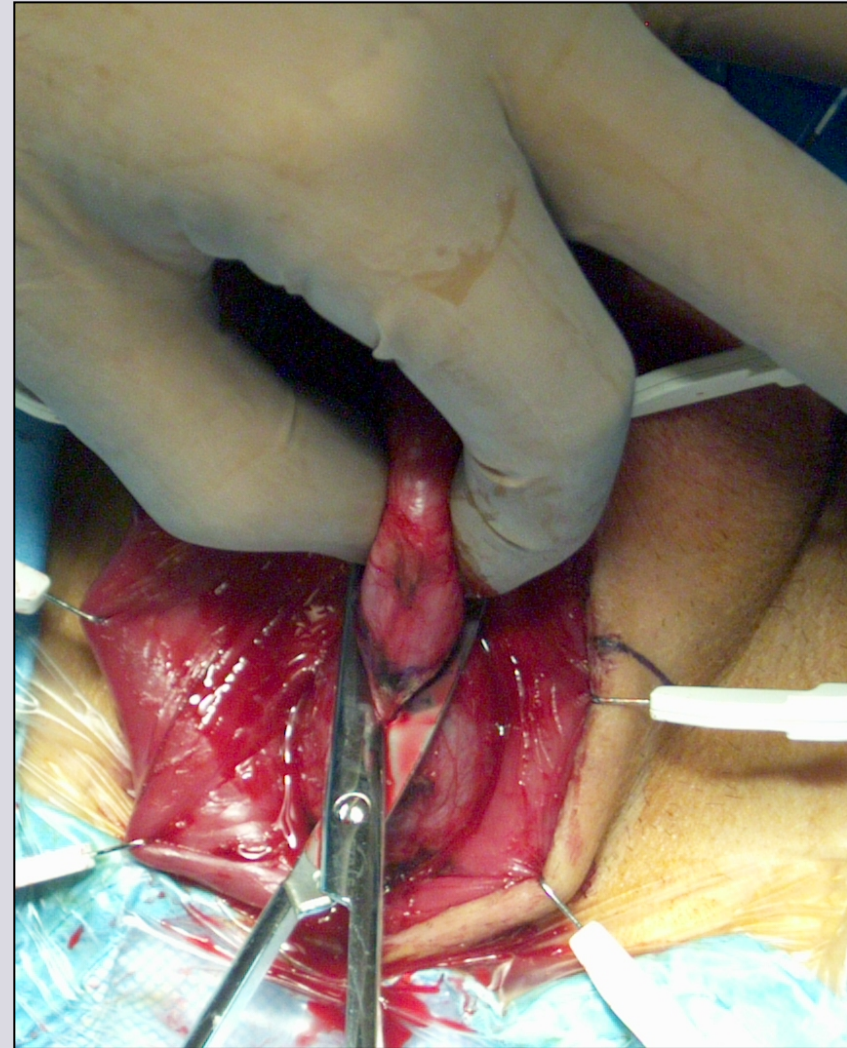
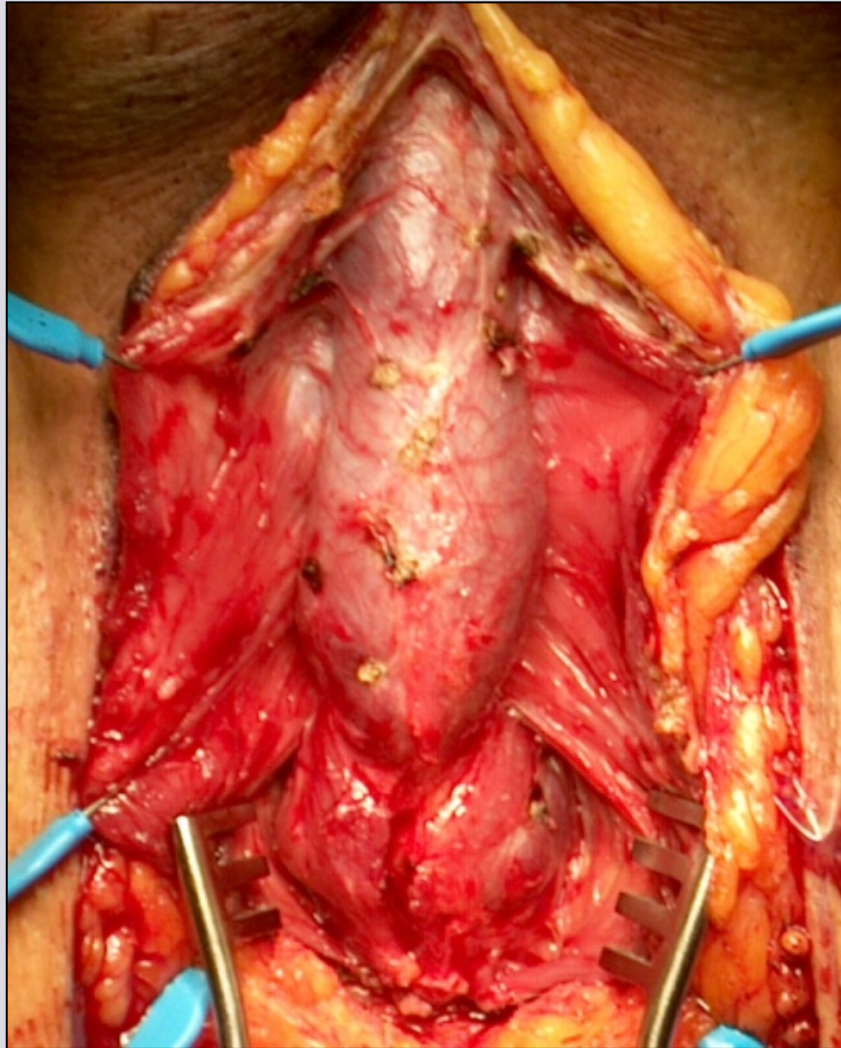
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# 1 - 2 cm traumatic bulbar urethral stricture





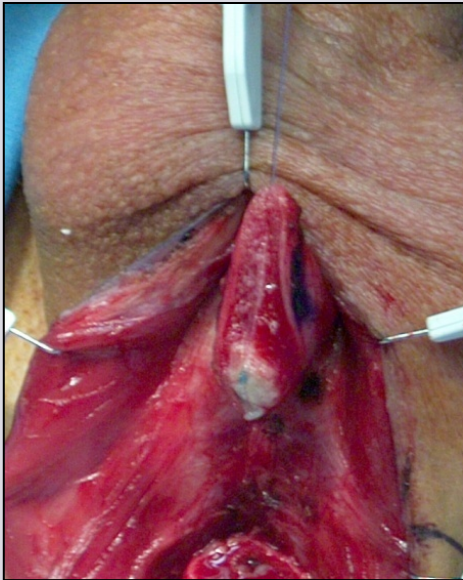
# End-to-end anastomosis



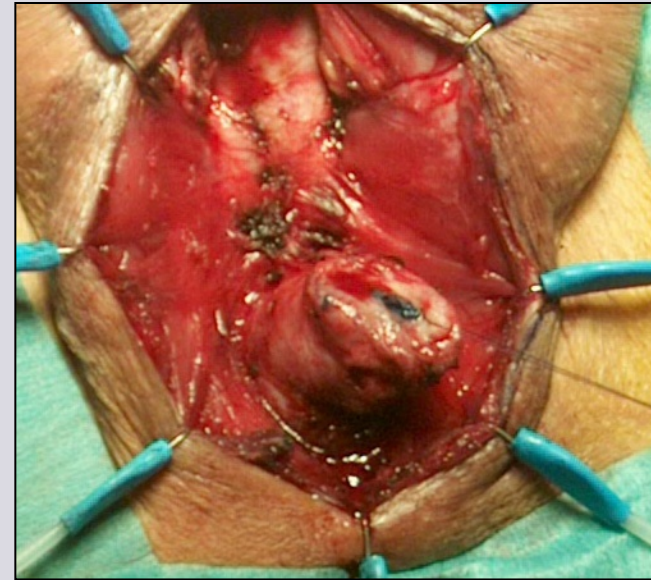
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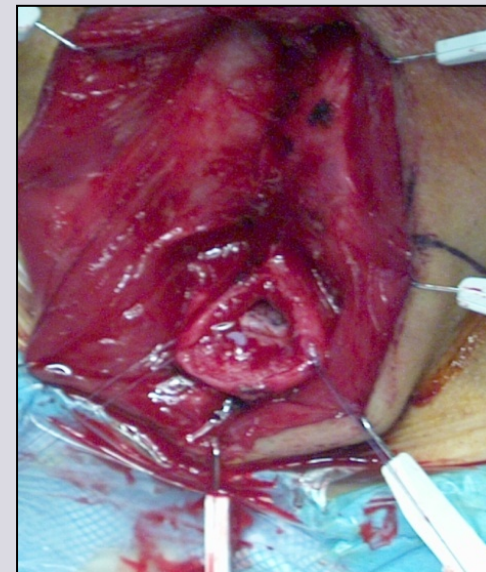




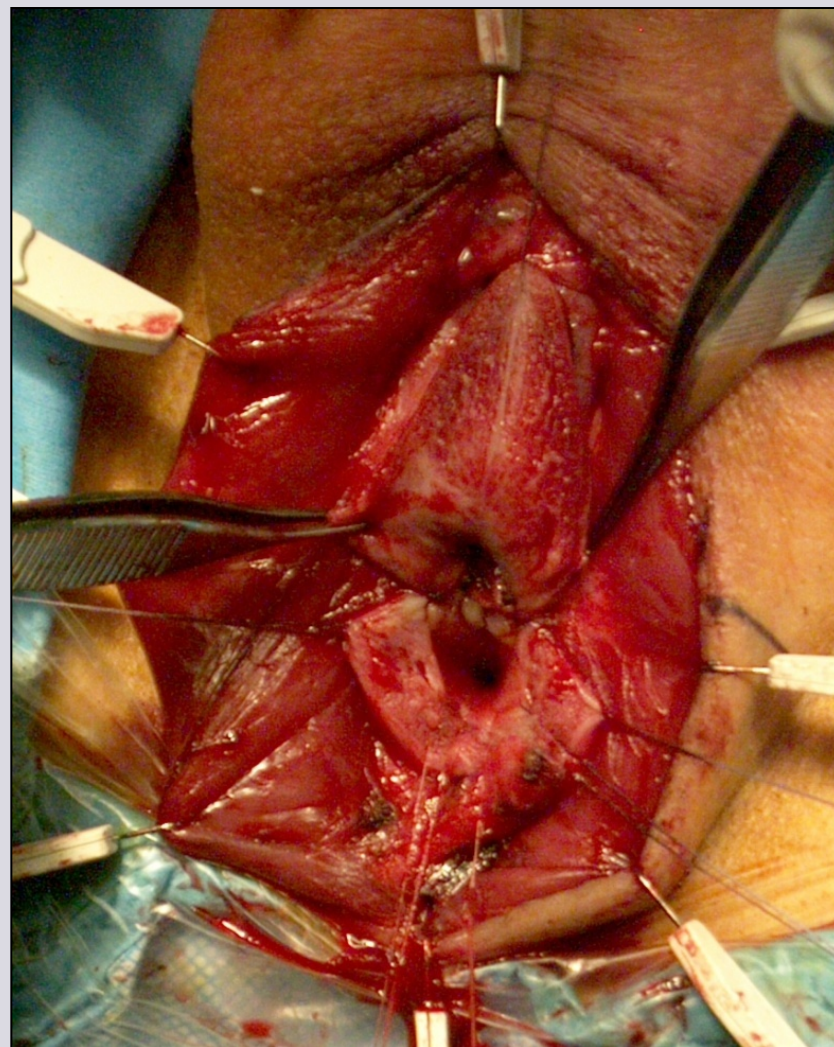
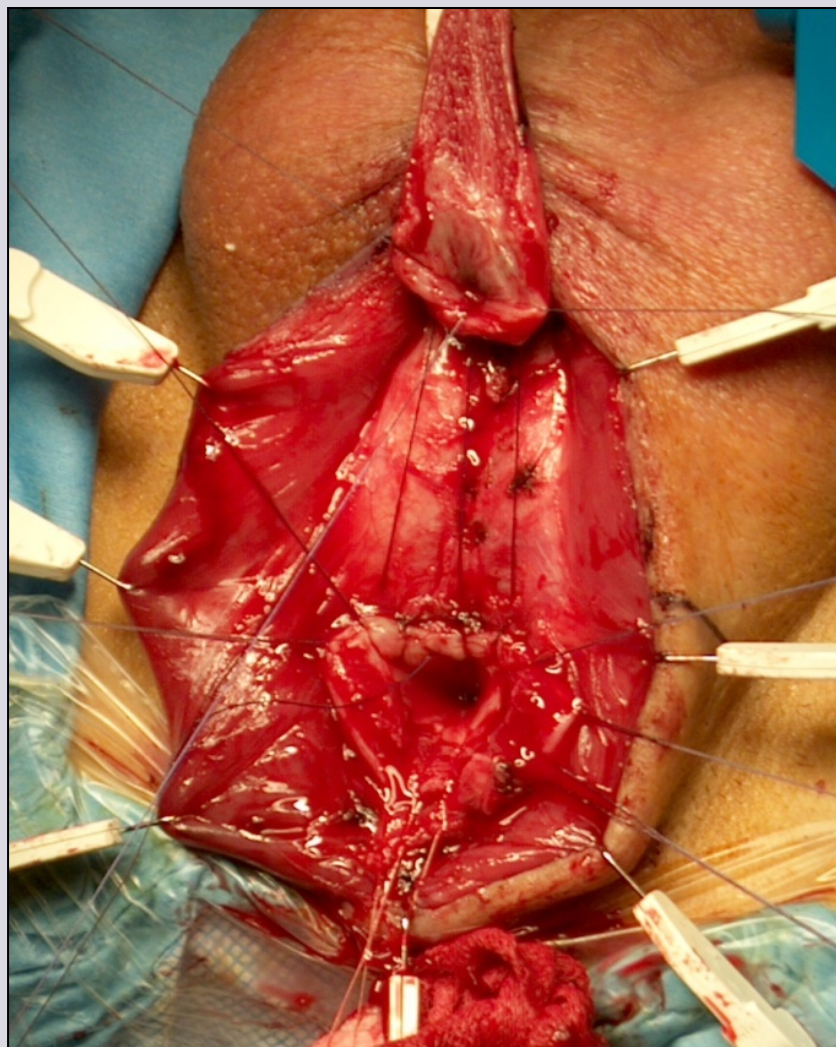
**distal end**



**proximal end**



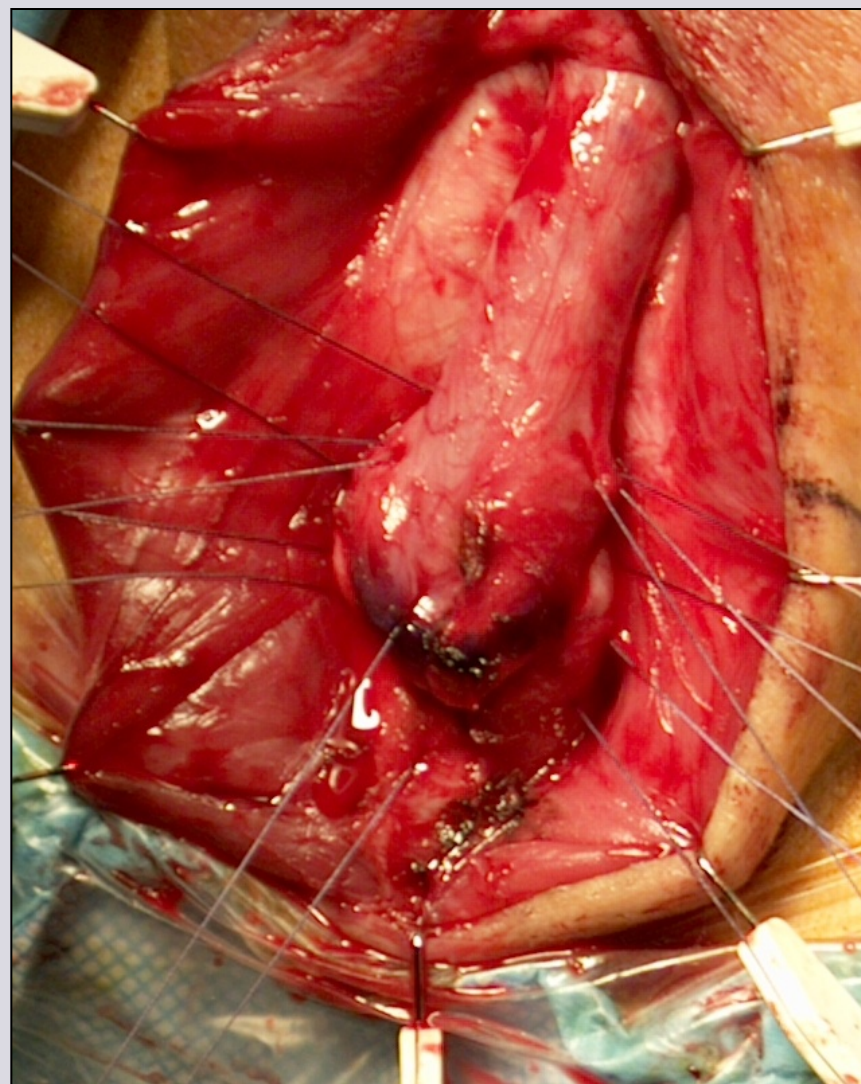
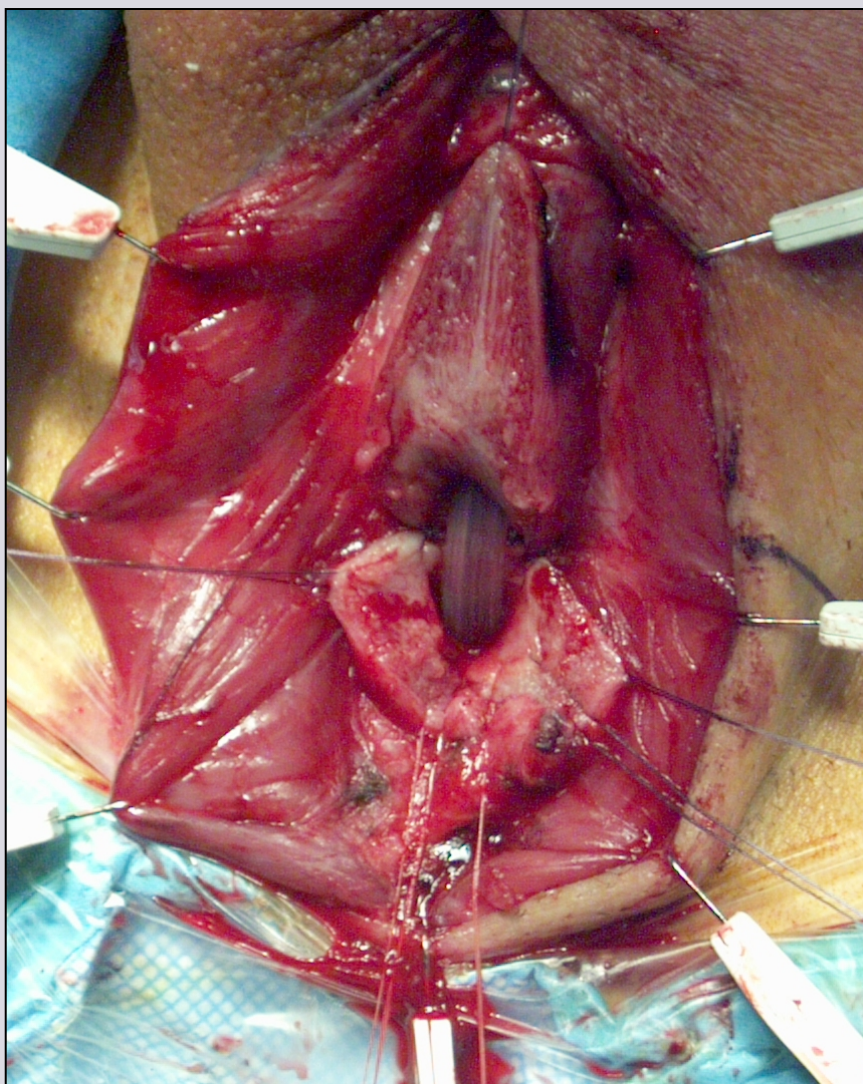




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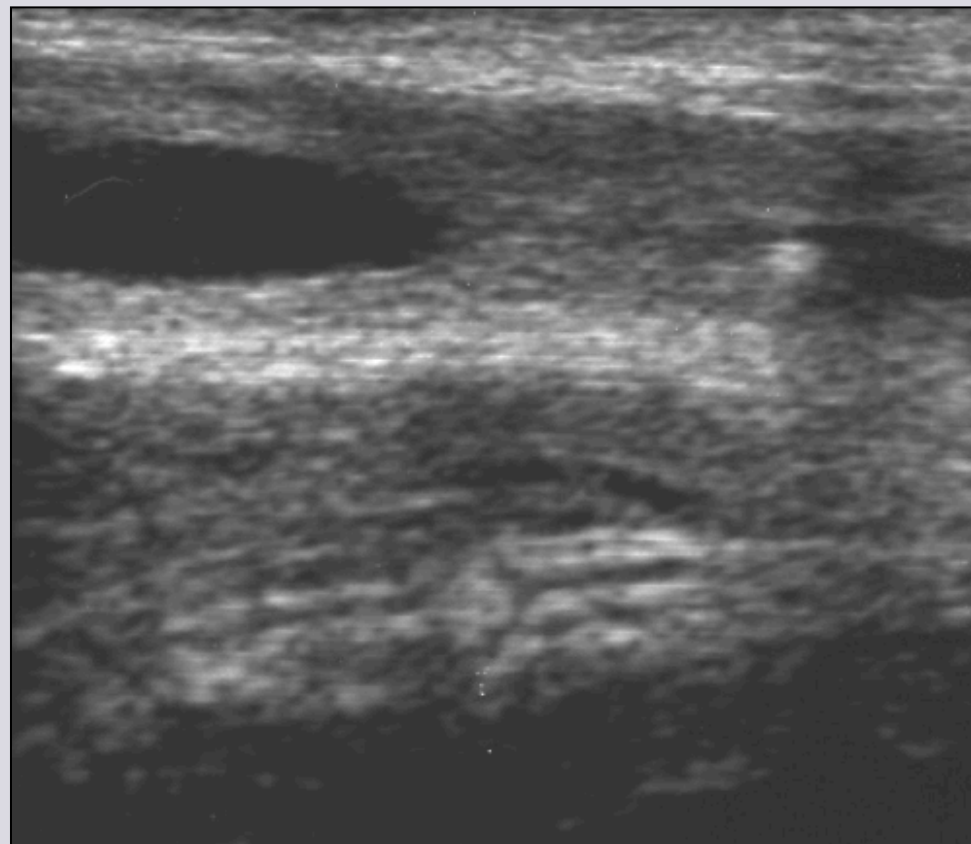
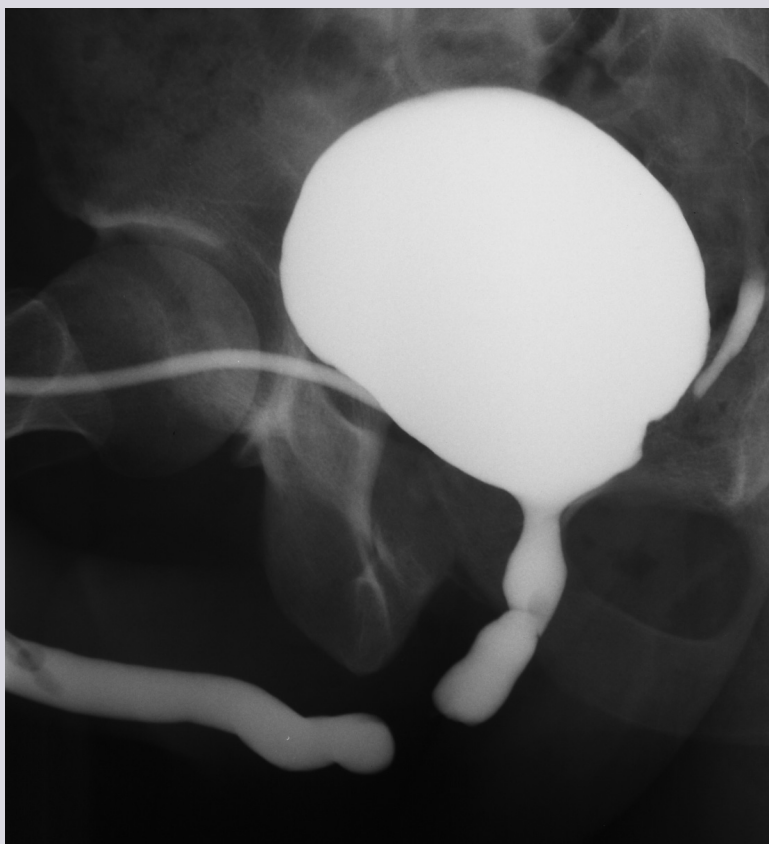


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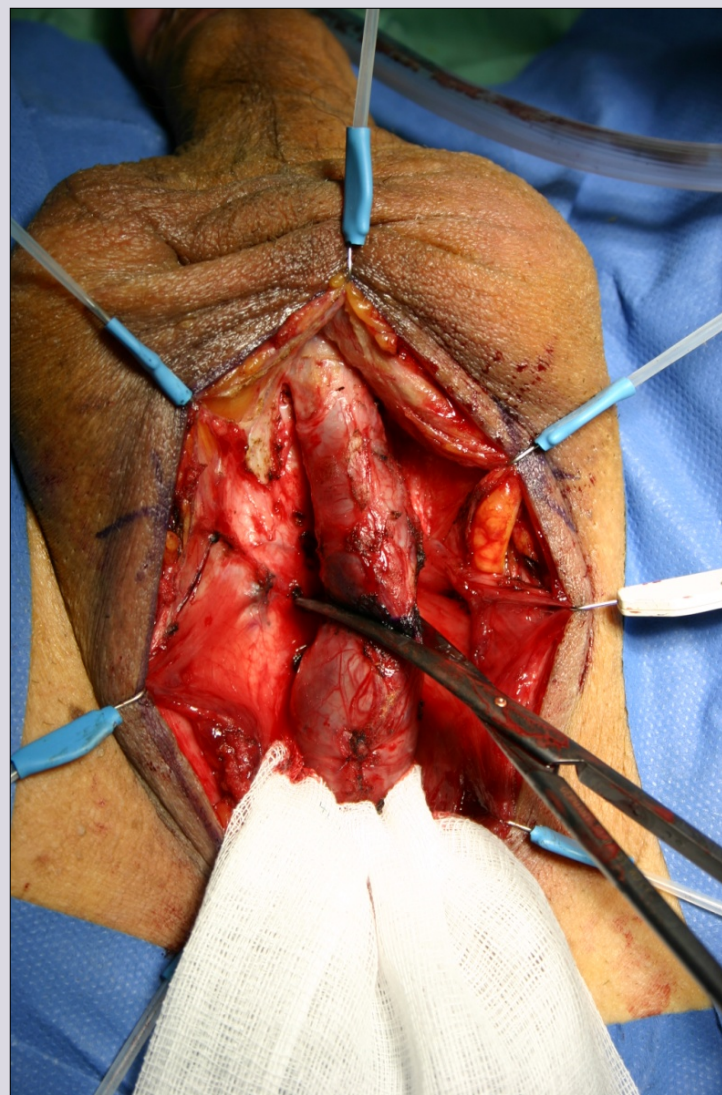
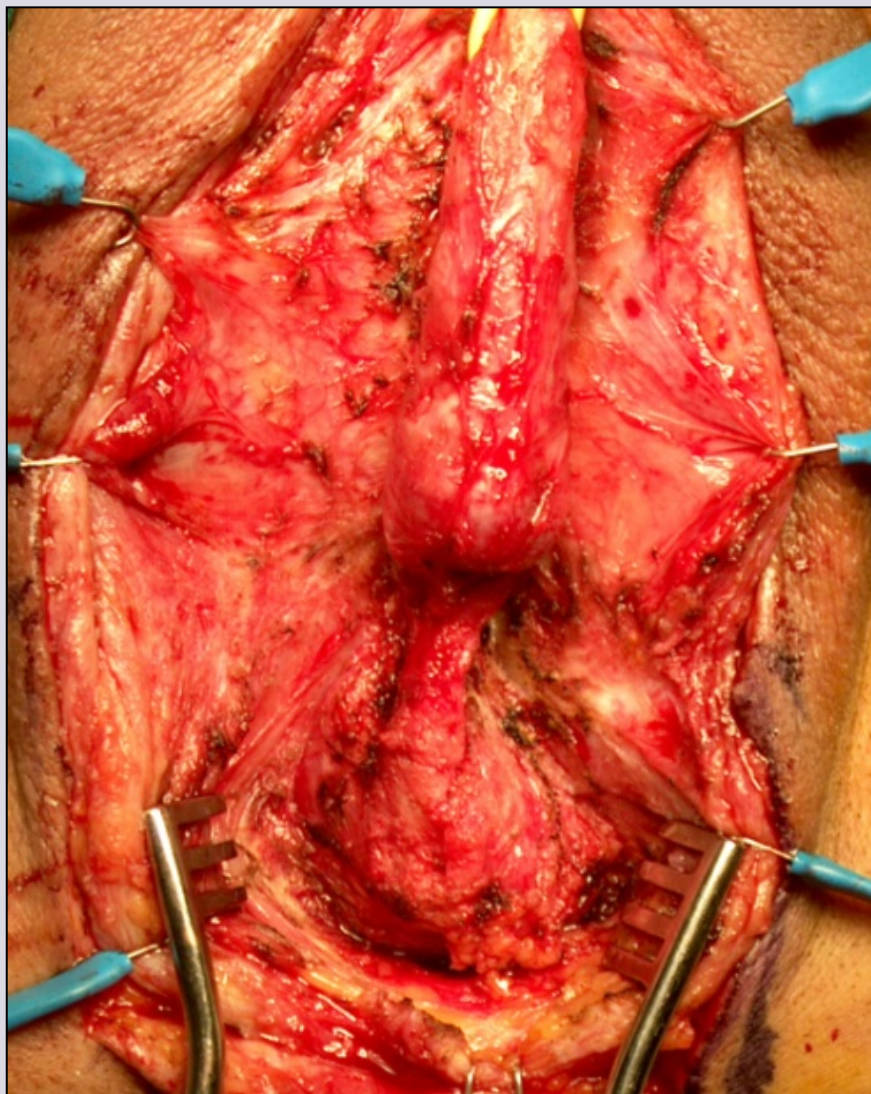
## 2 - 4 cm traumatic bulbar urethral stricture



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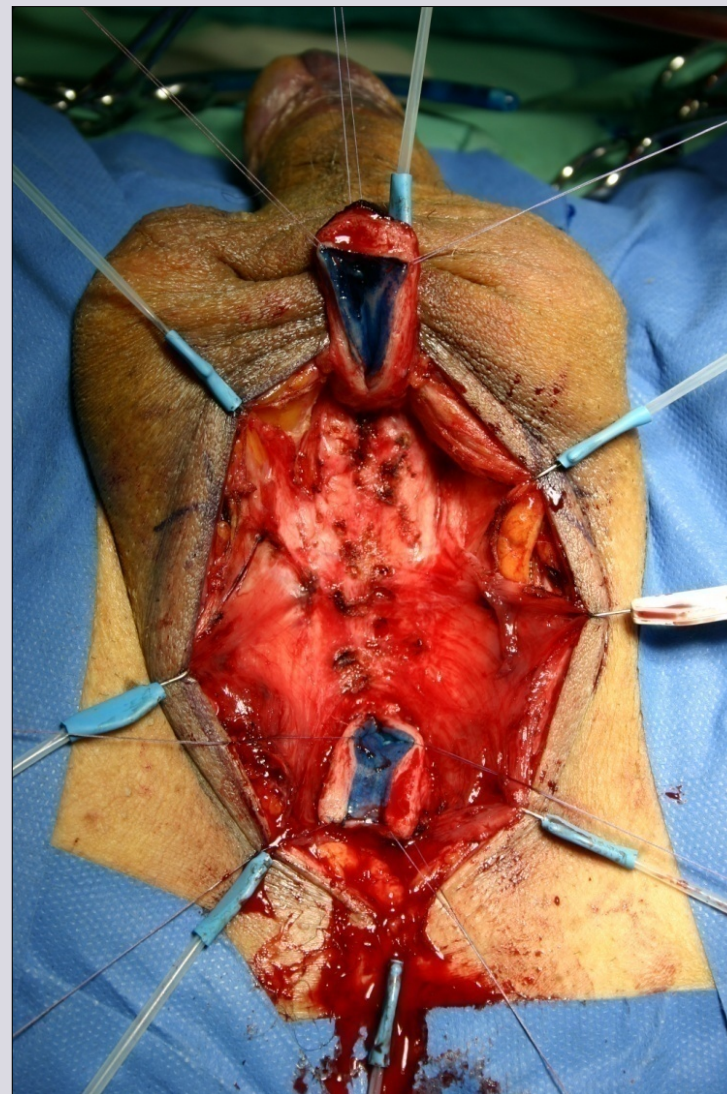
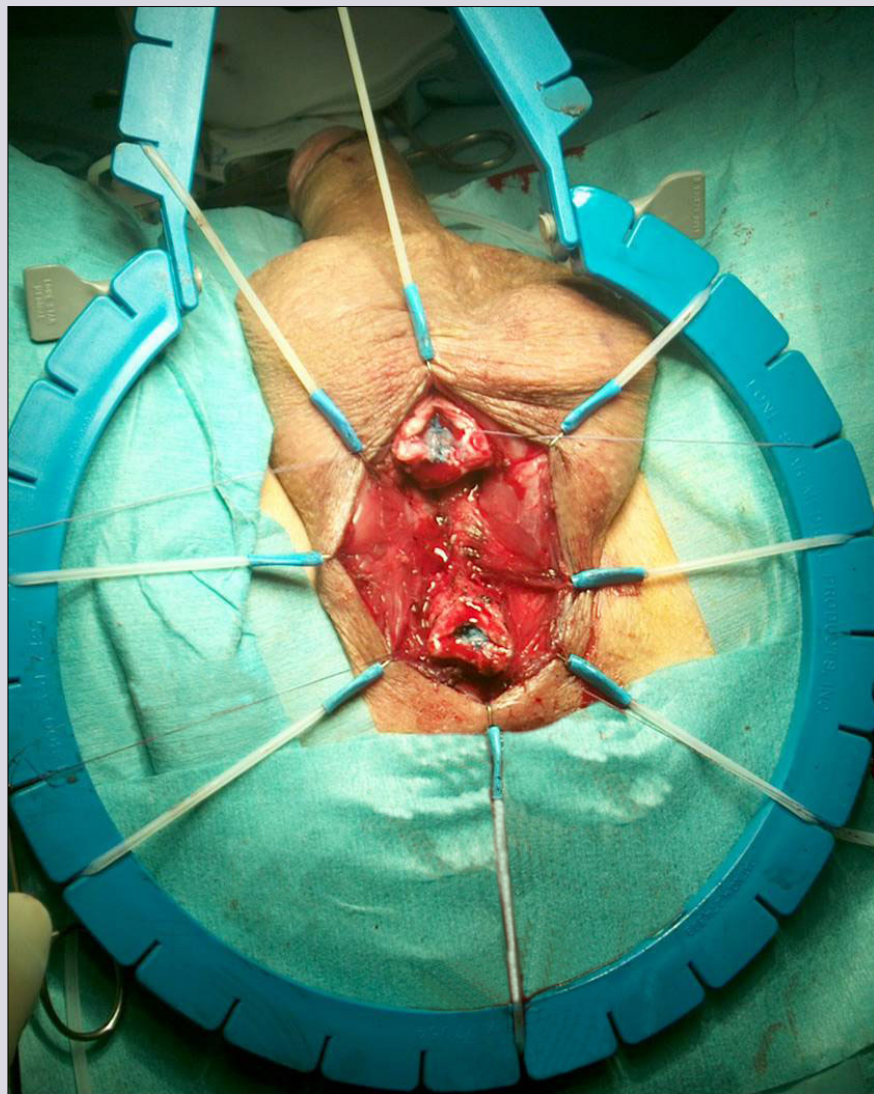
# Augmented anastomotic repair



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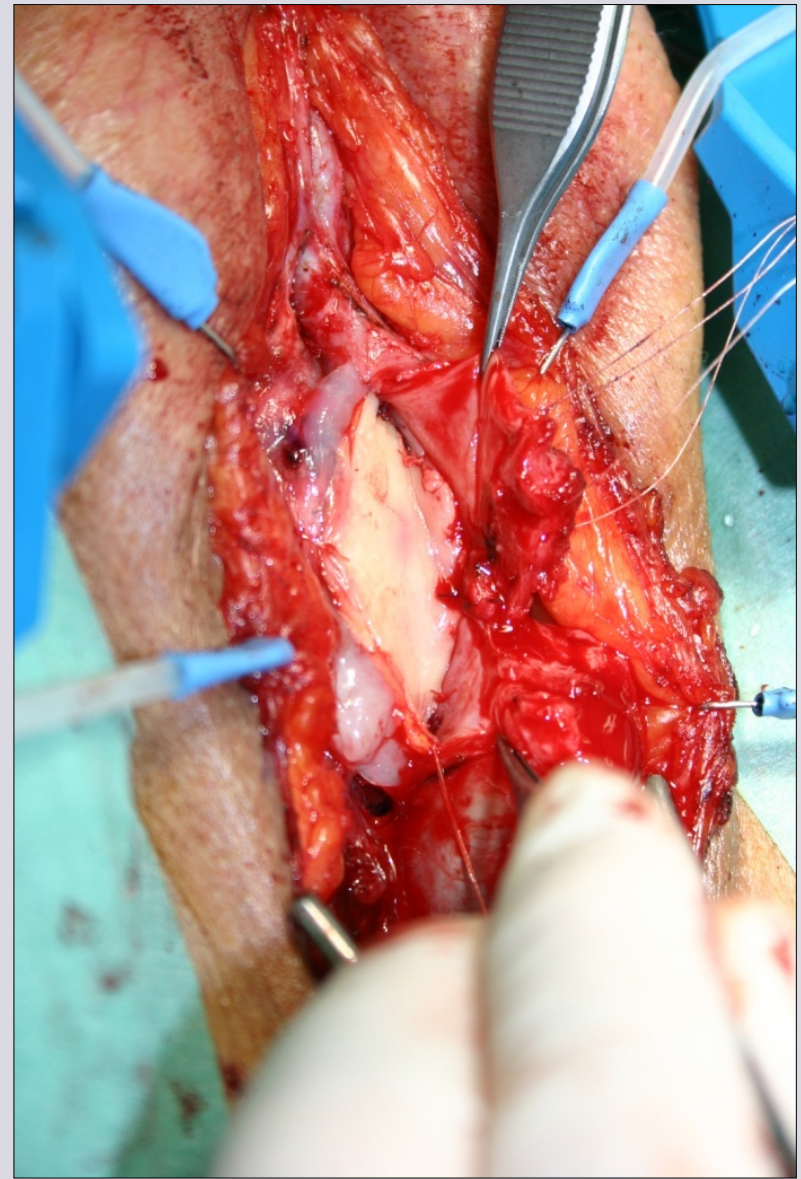




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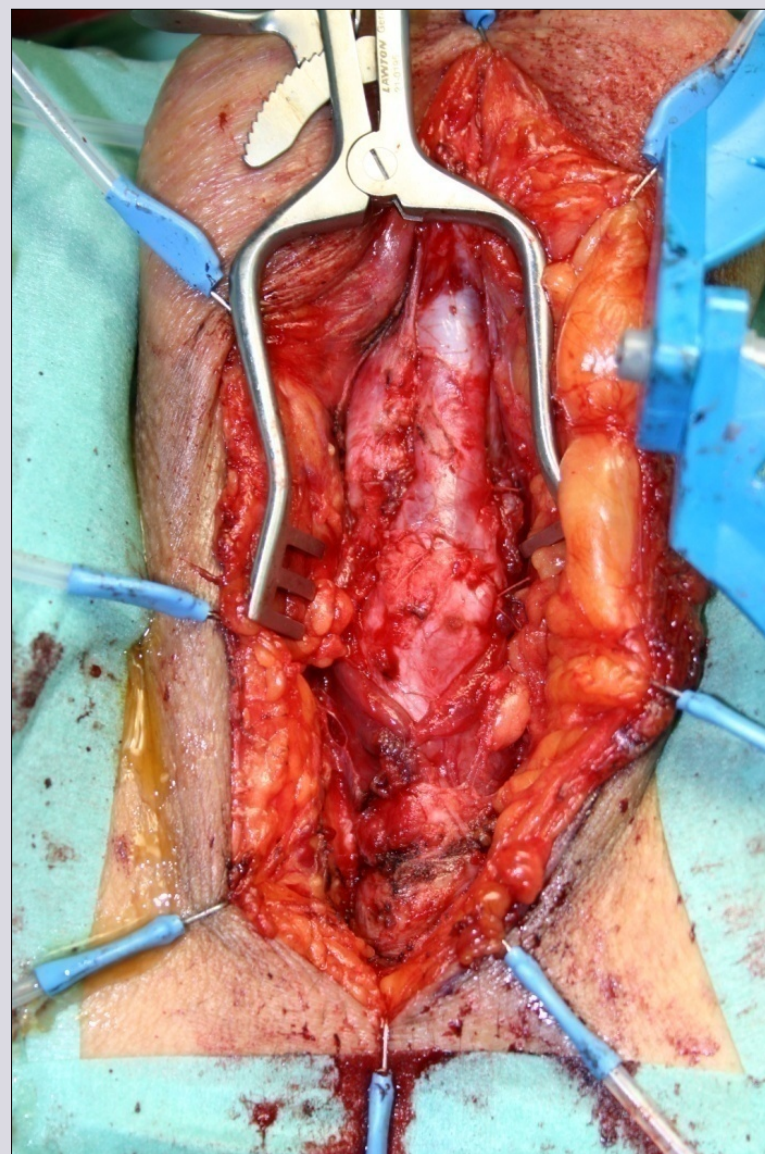
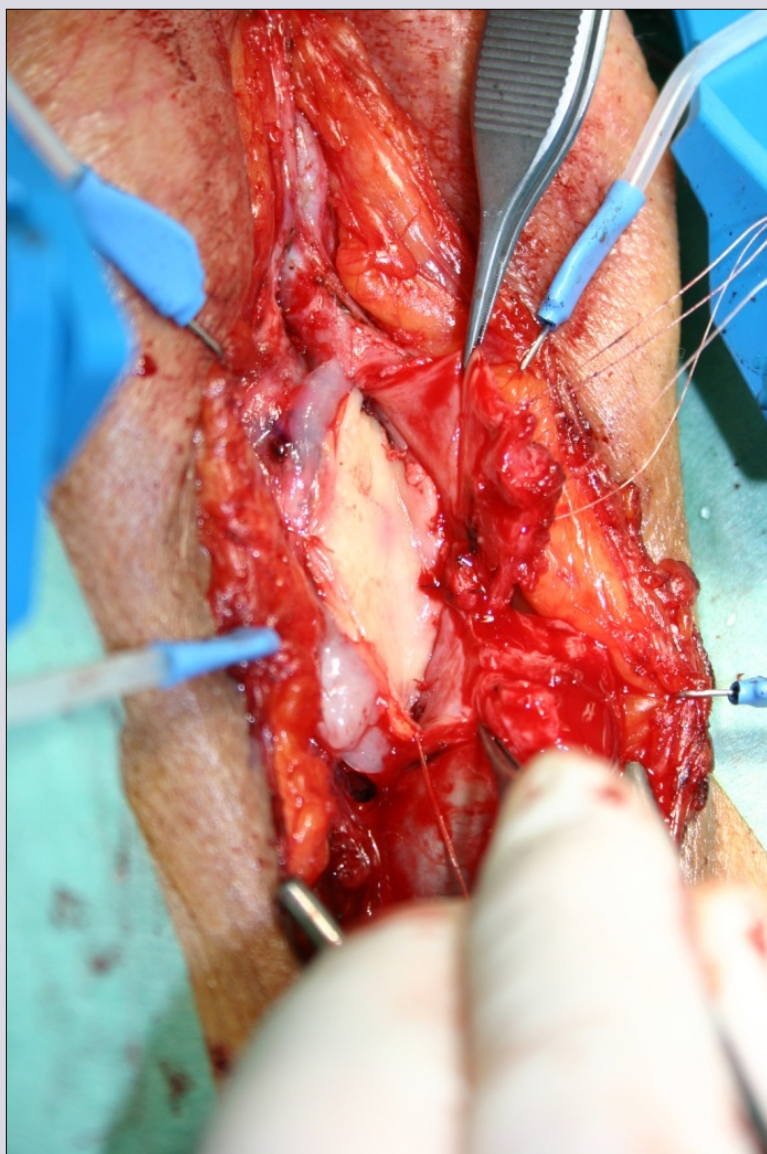




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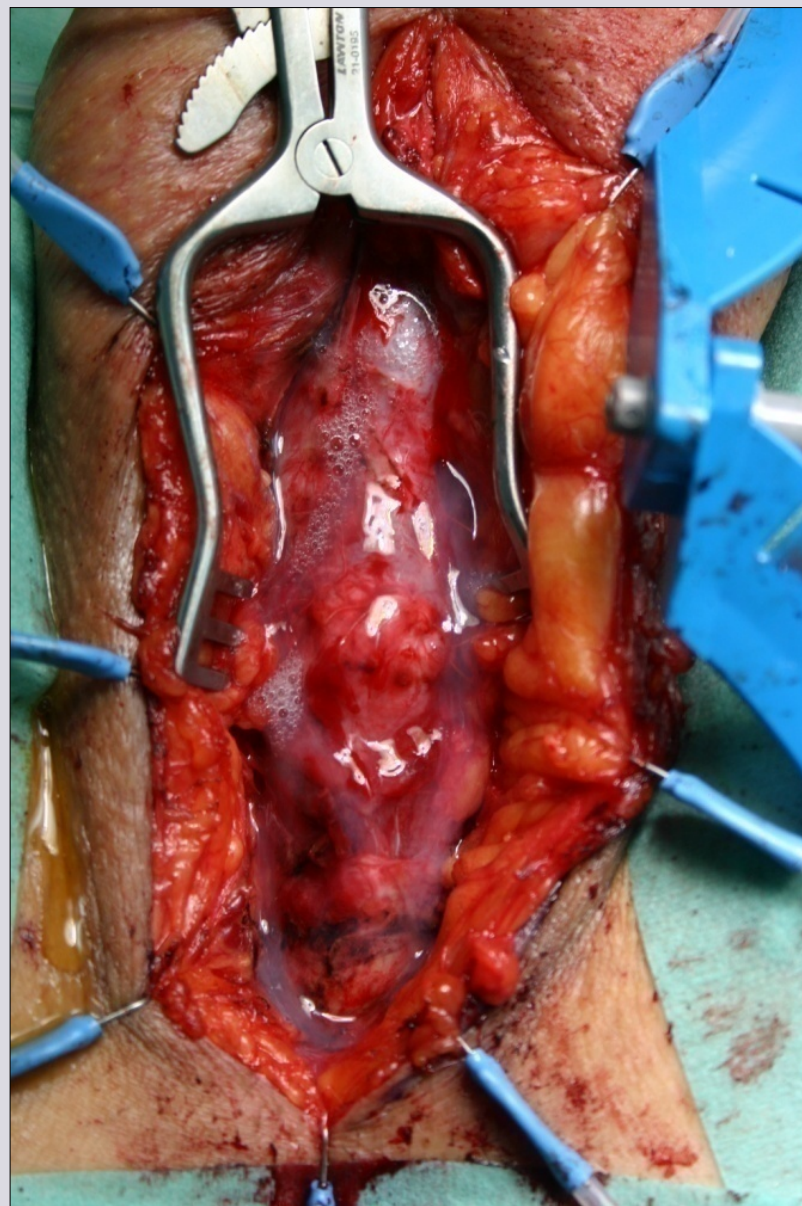




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# **Reconstruction of the bulbar urethra in non-traumatic stricture**



# Non-traumatic bulbar urethral stricture



**Pre-operative  
urethroscopy**



**Insert Sensor 3 Fr. guidewire**

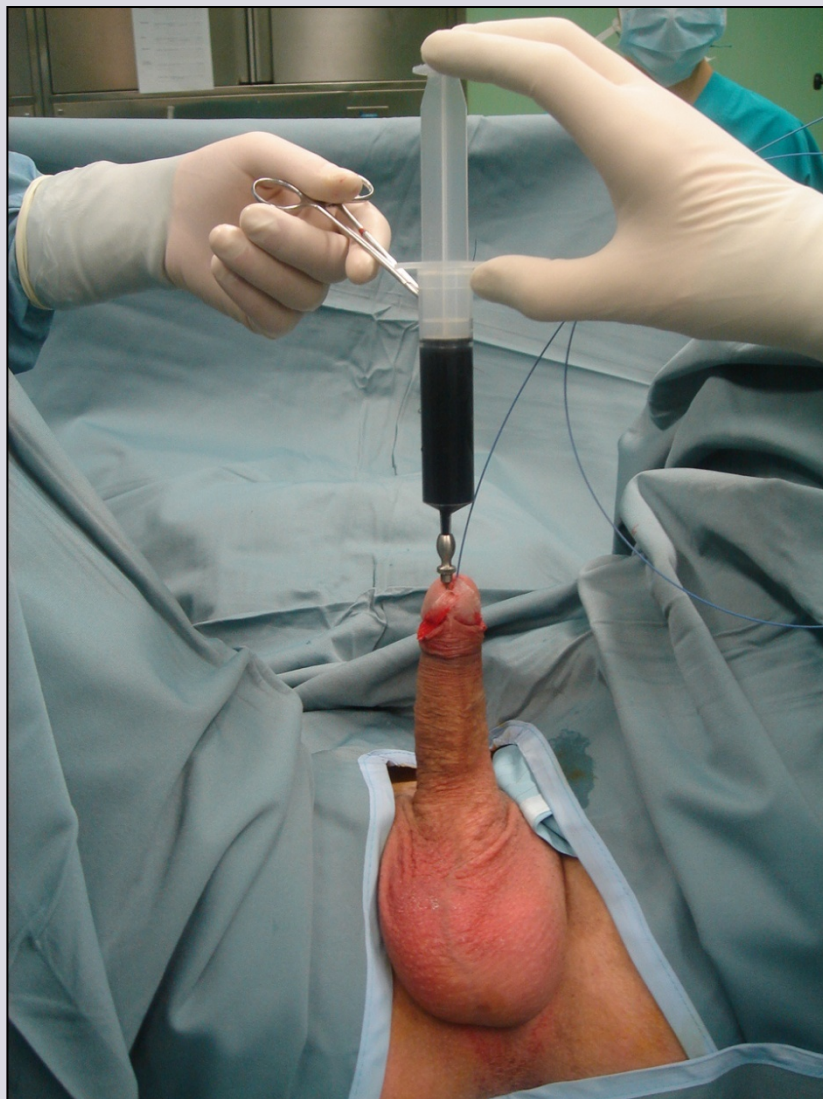


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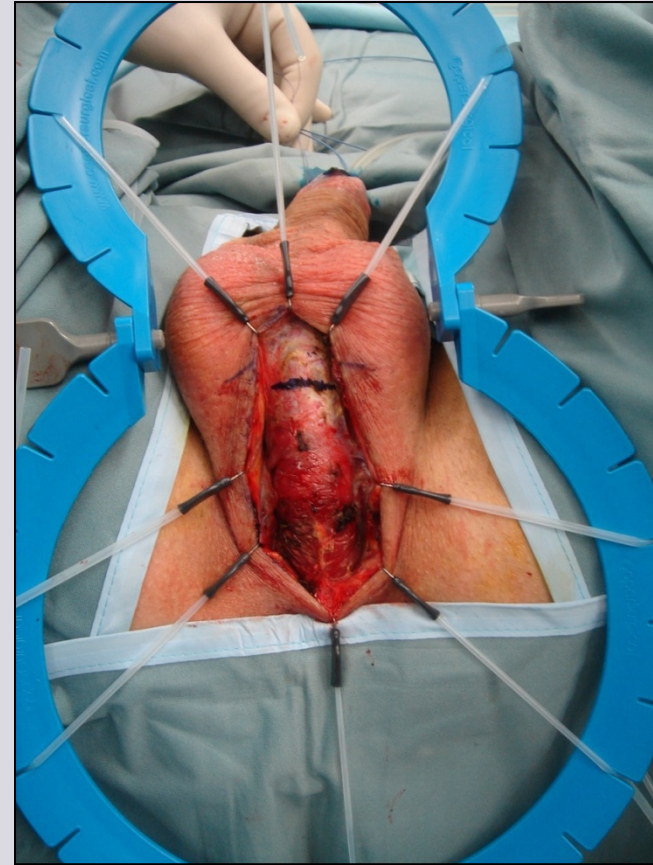
# Non-traumatic bulbar urethral stricture



**Inject methylene blue  
inside the urethra**

**(G. Webster)**

# Non-traumatic bulbar urethral stricture



**Calibrate the distal urethra and identify the distal stop**



# Non-traumatic bulbar urethral stricture



**Ventral or dorsal graft?**

# Ventral or dorsal graft?



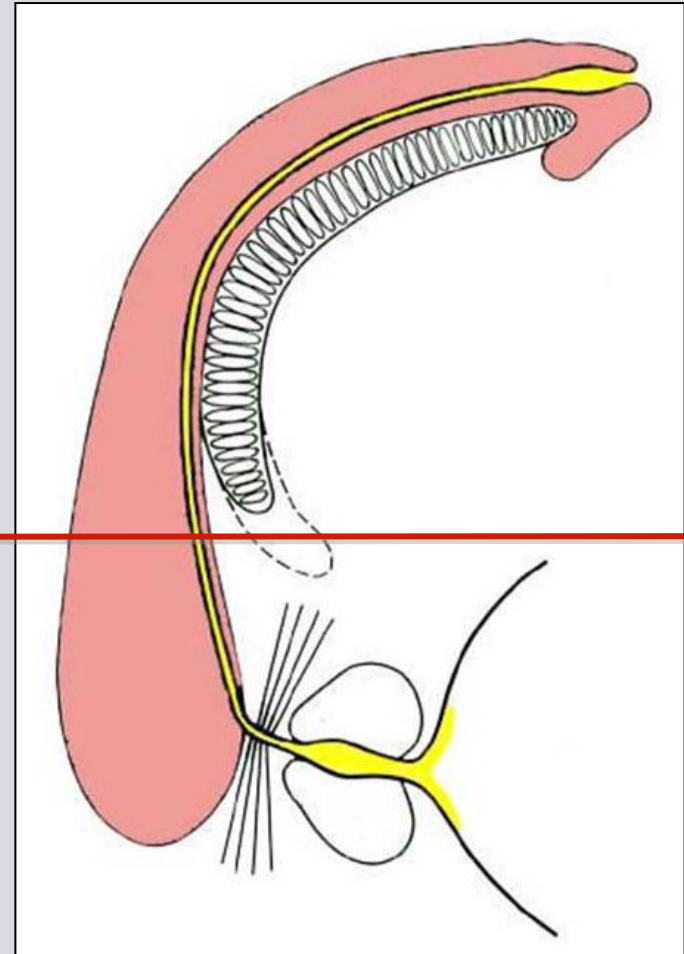
**Distal**

**Dorsal onlay**

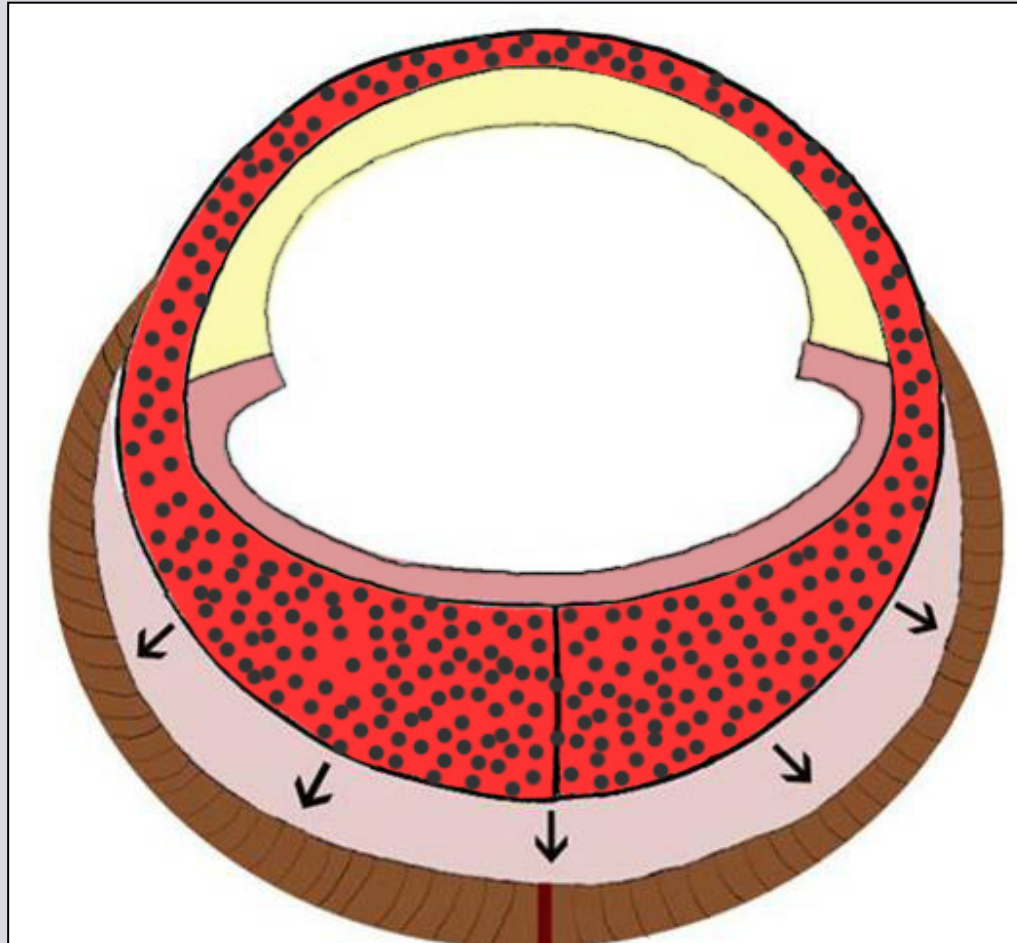


**Proximal**

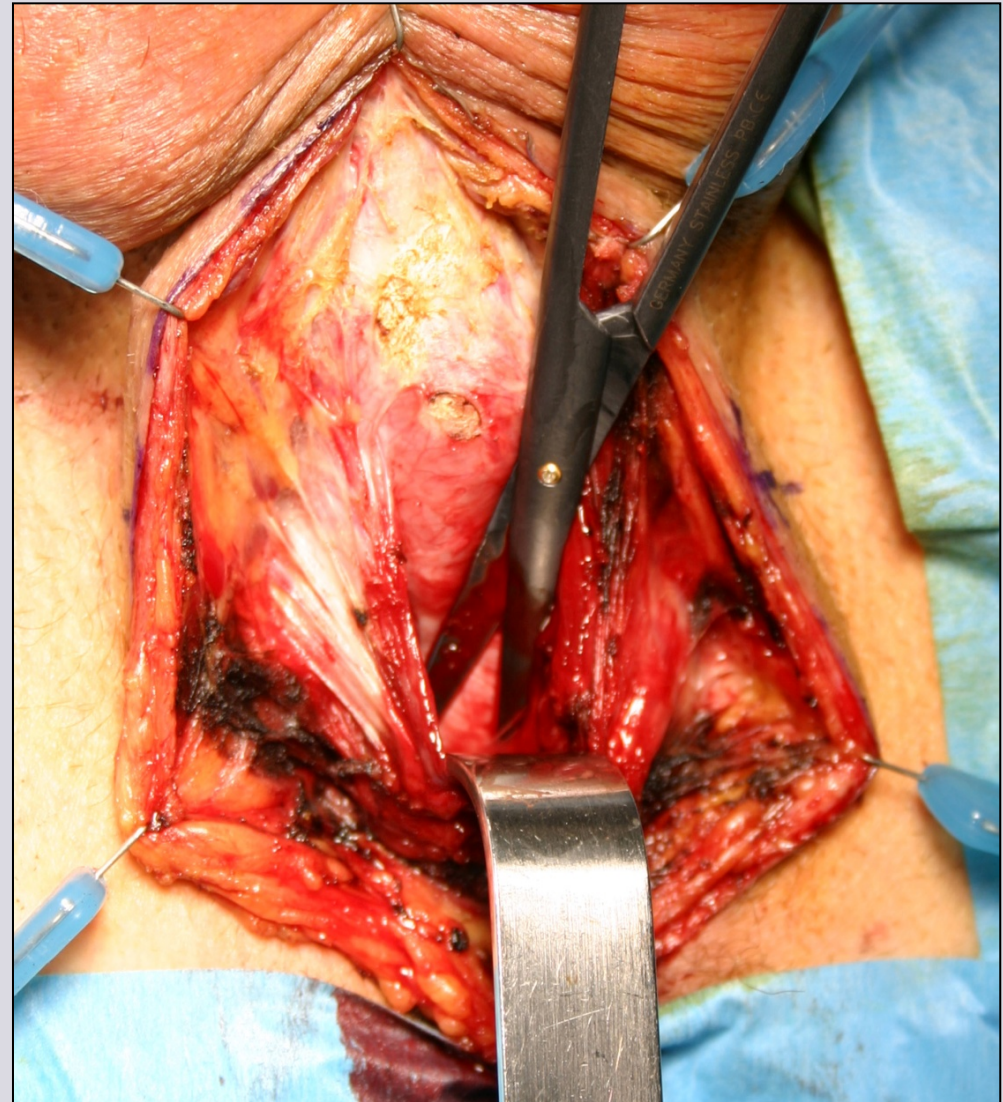
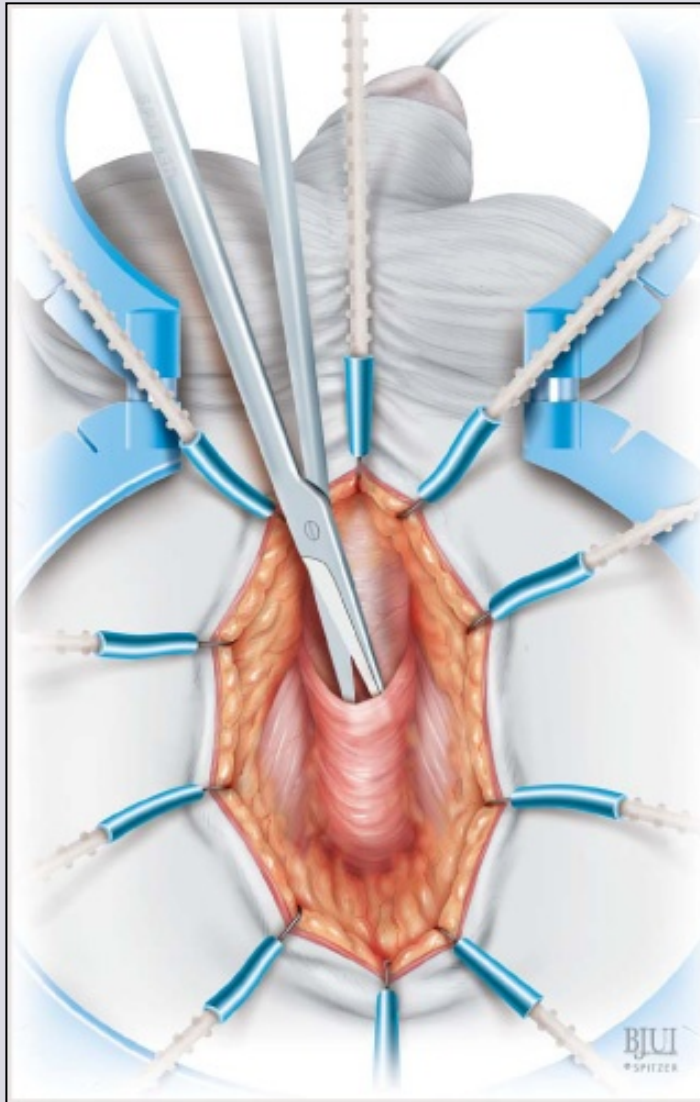
**Ventral onlay**







## **Muscle and nerve-sparing **ventral** onlay graft bulbar urethroplasty**

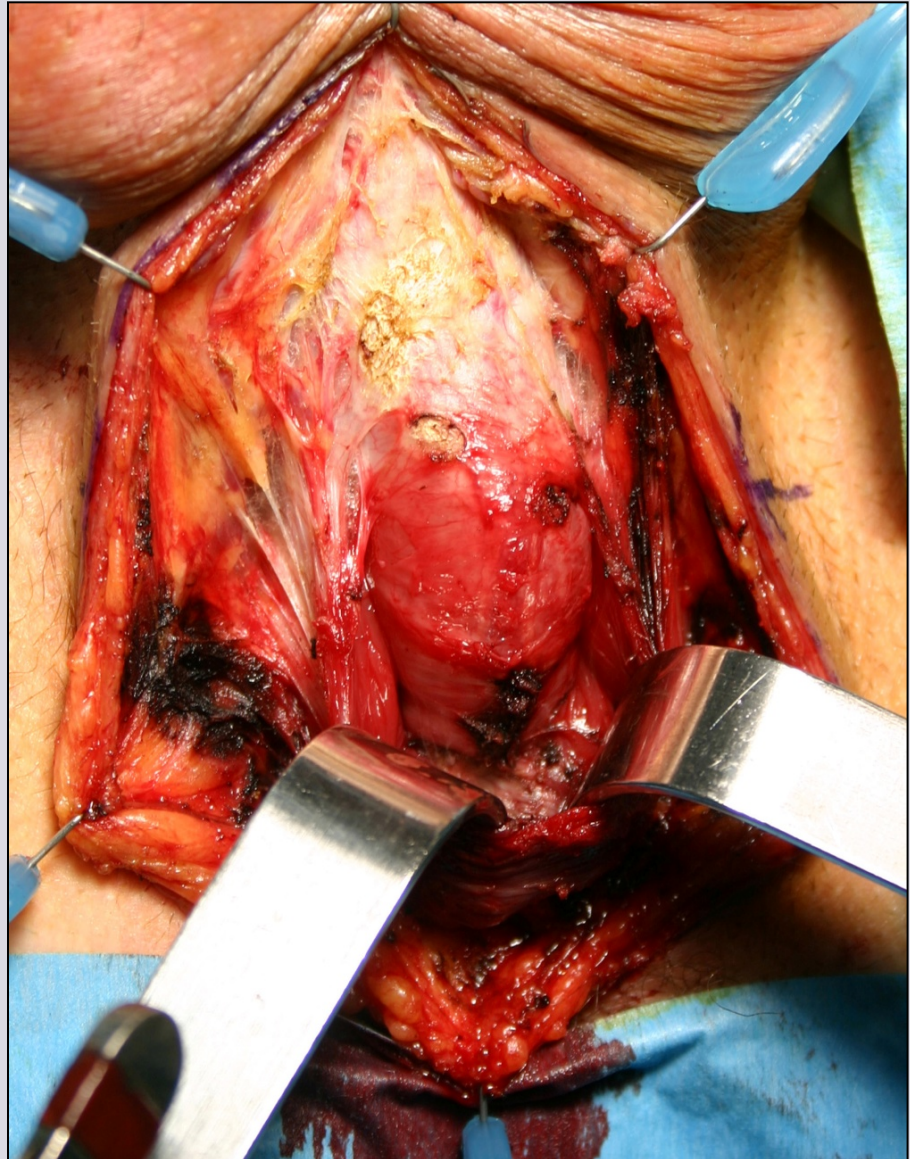
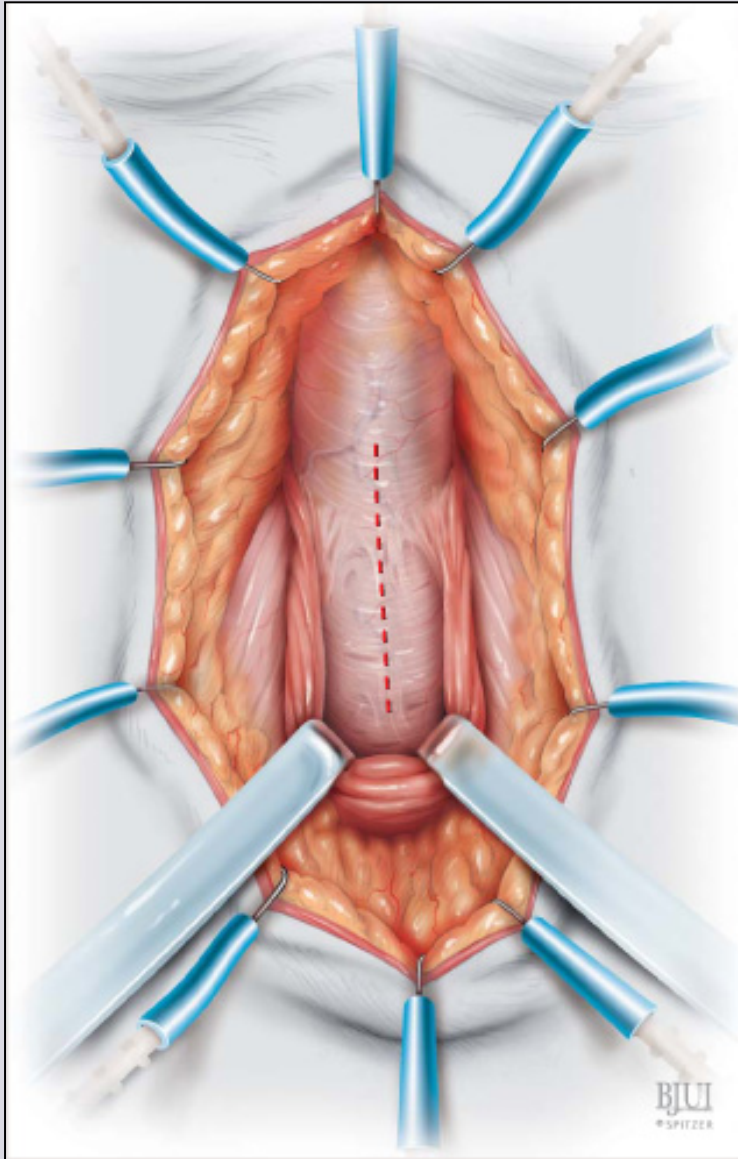


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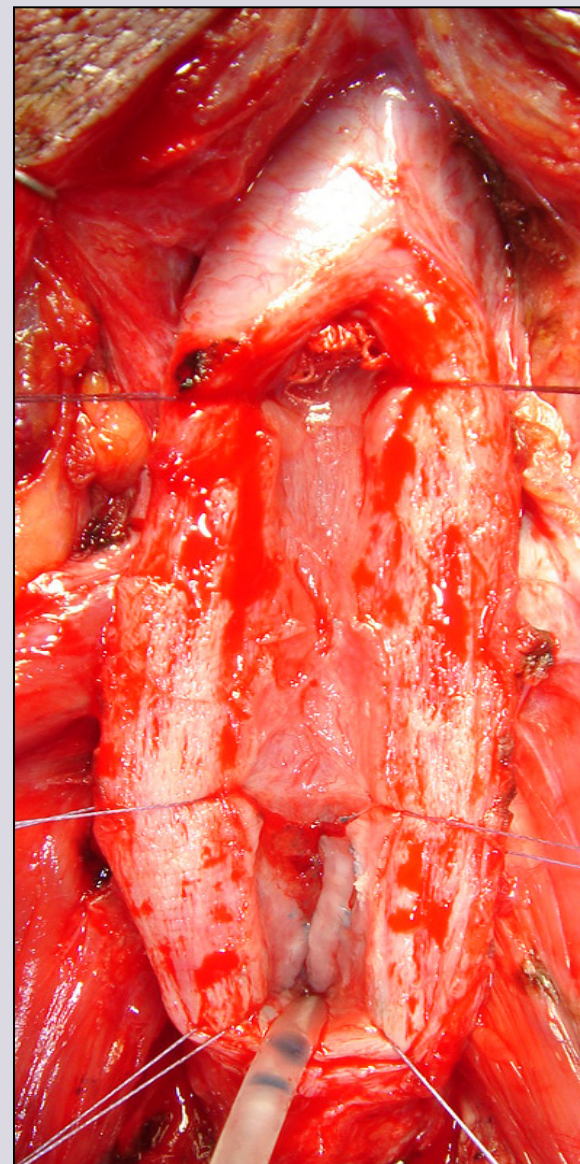
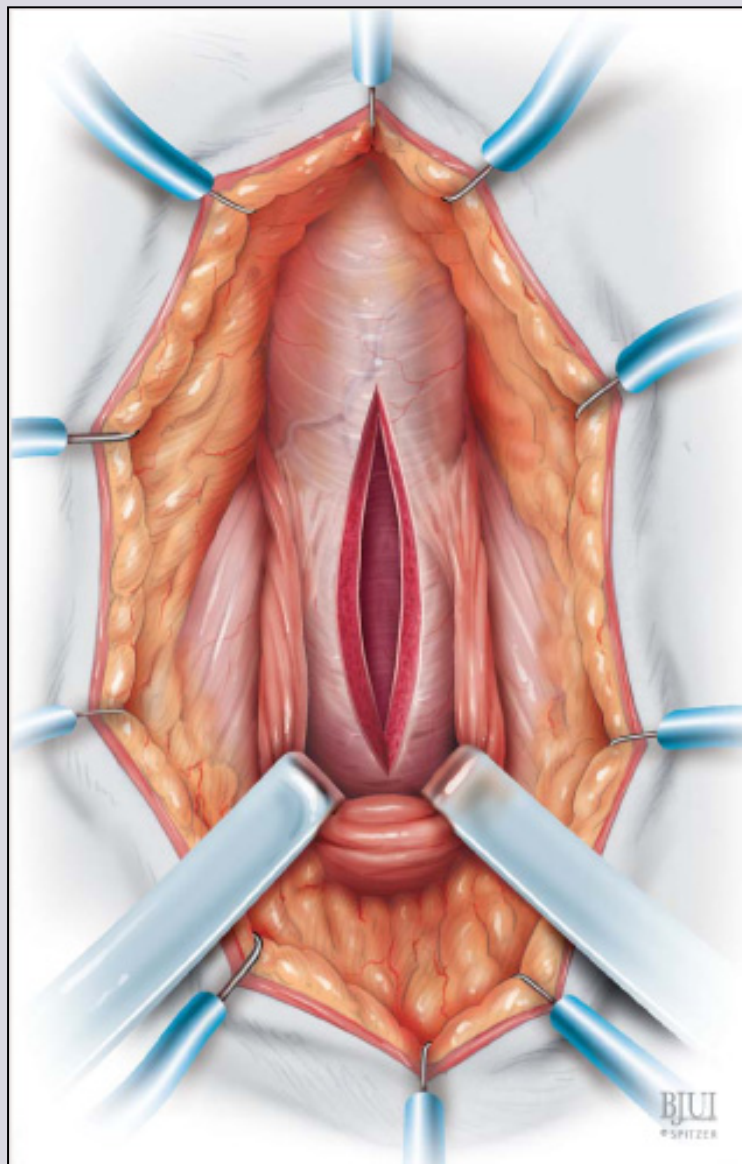




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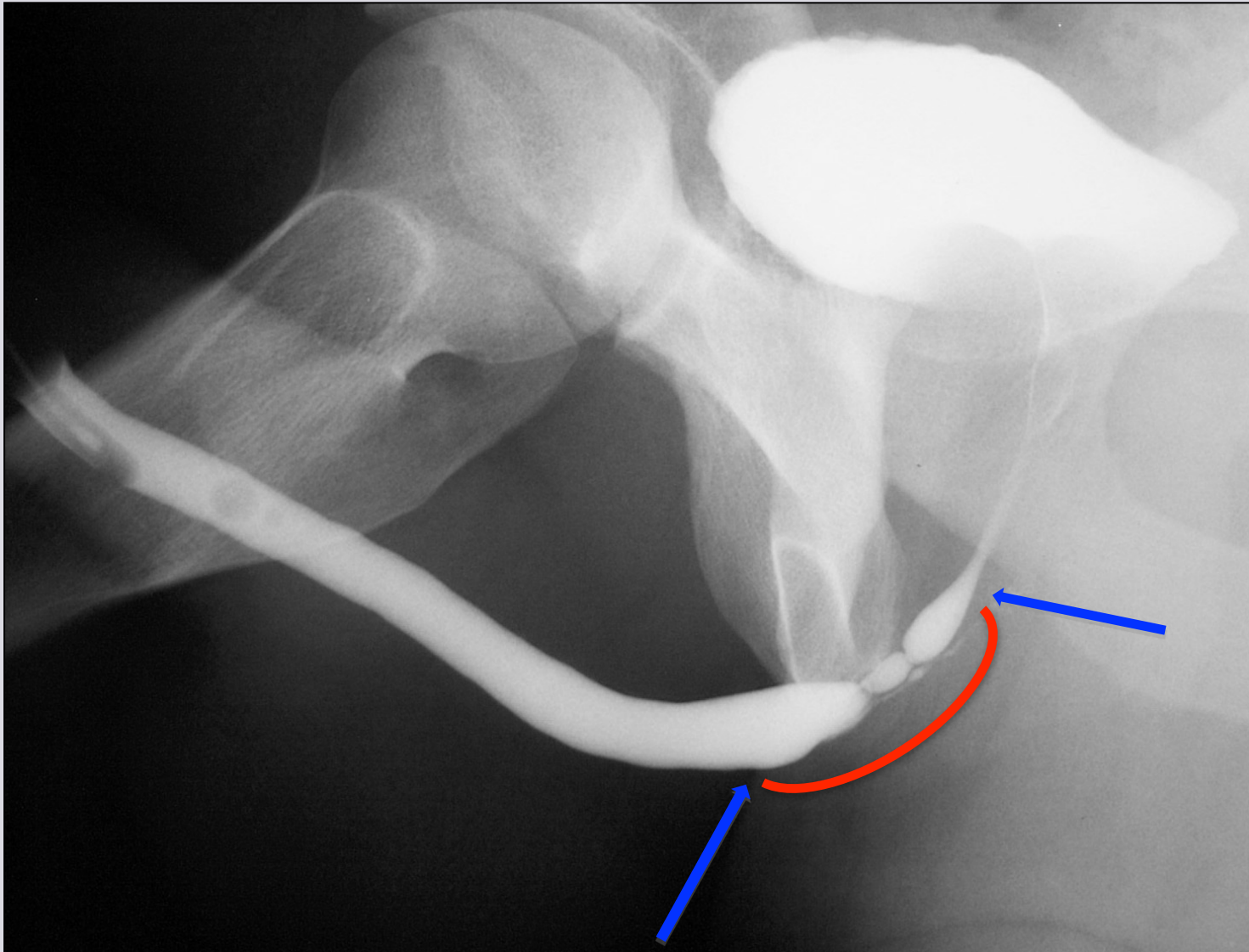




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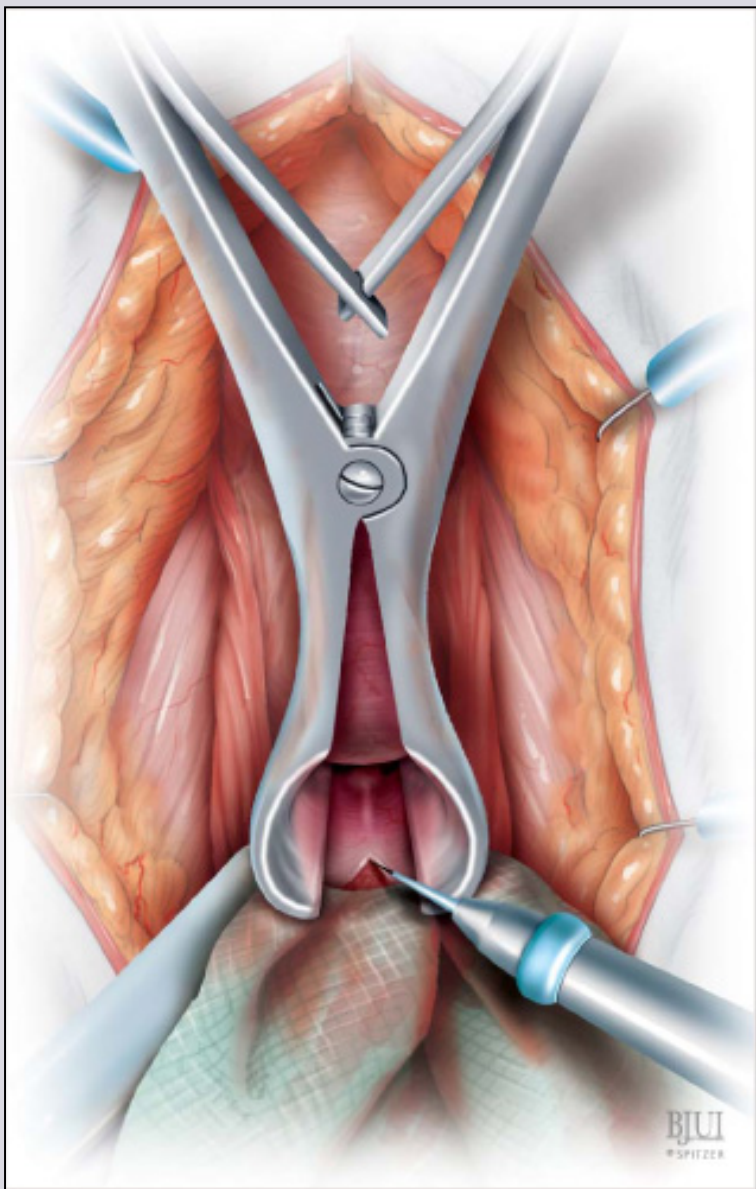
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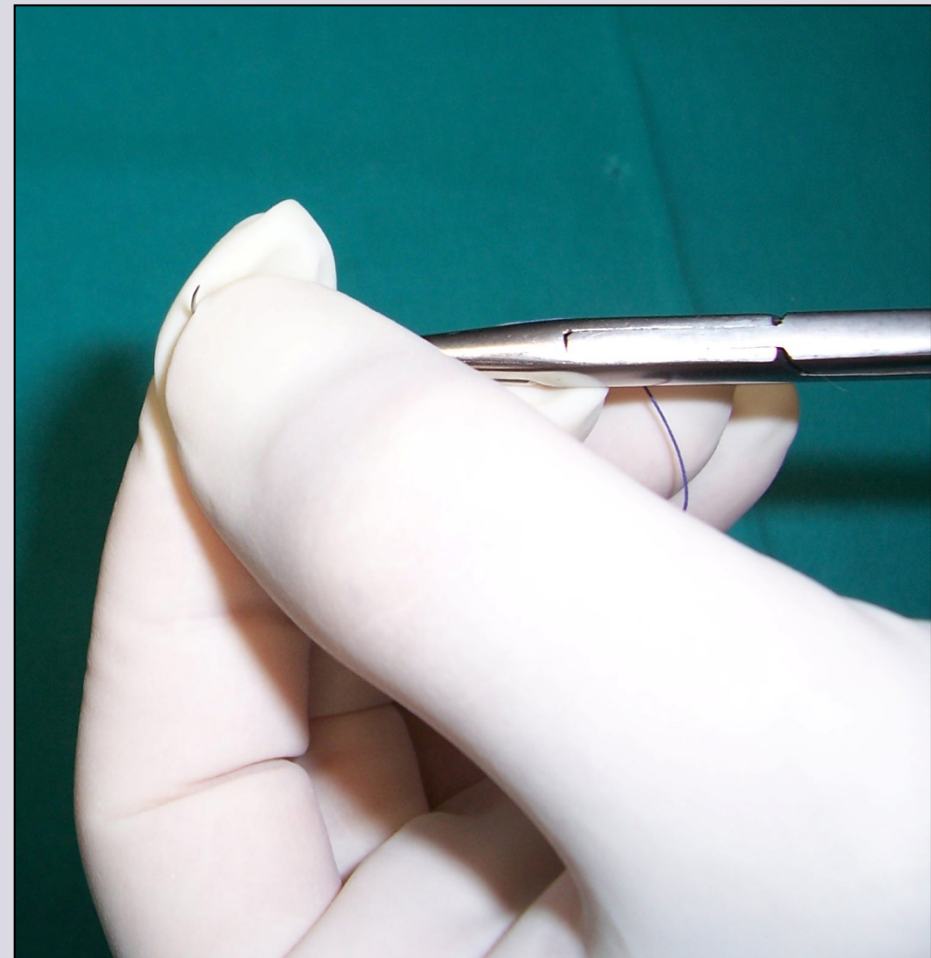
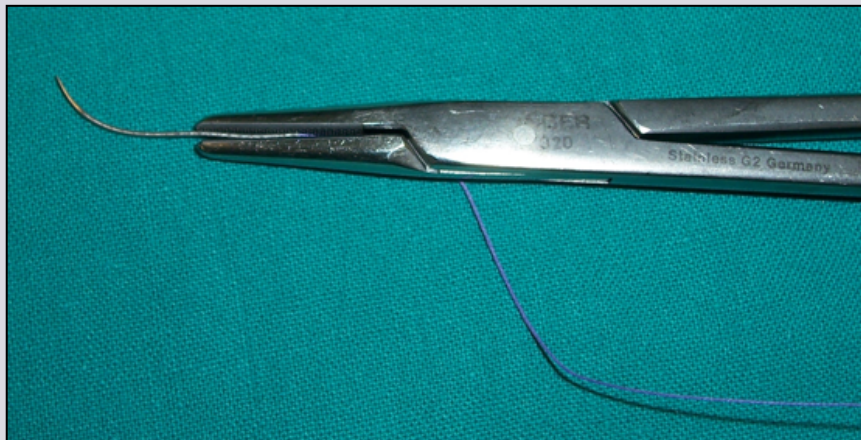
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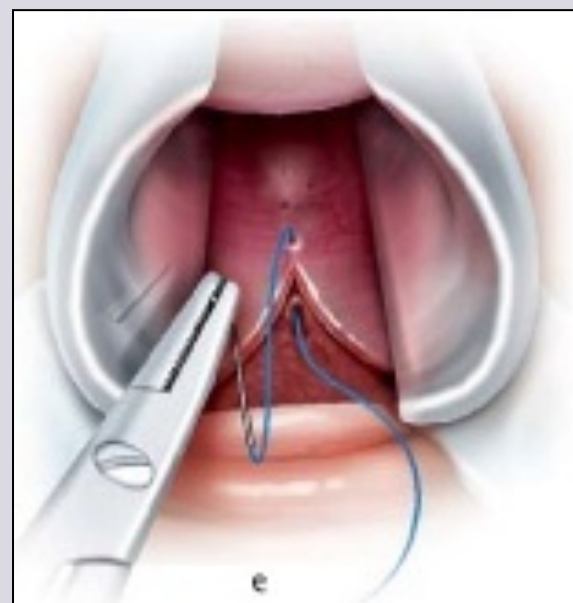
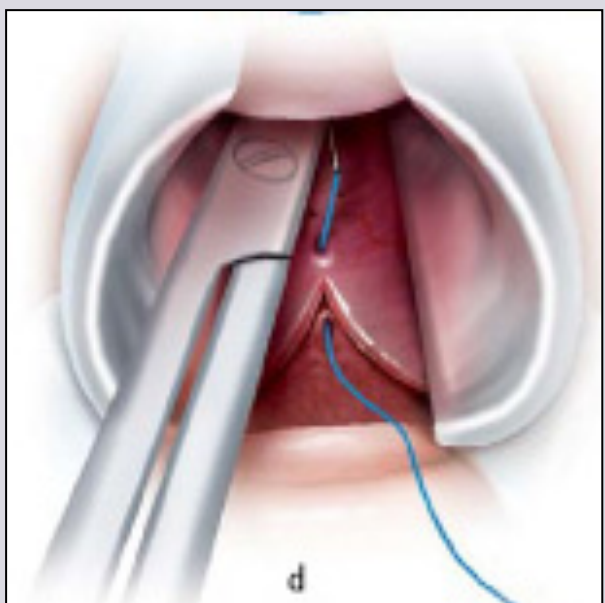
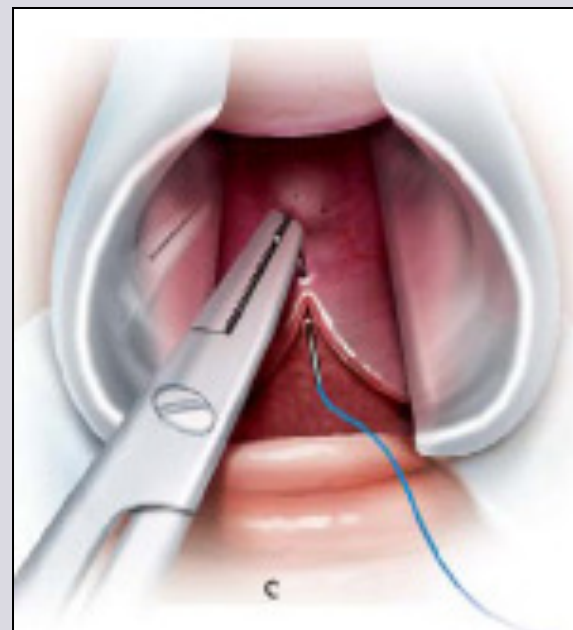
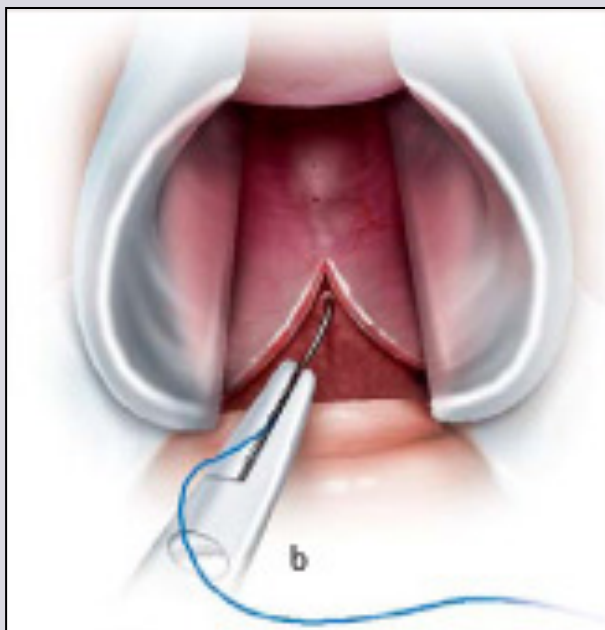
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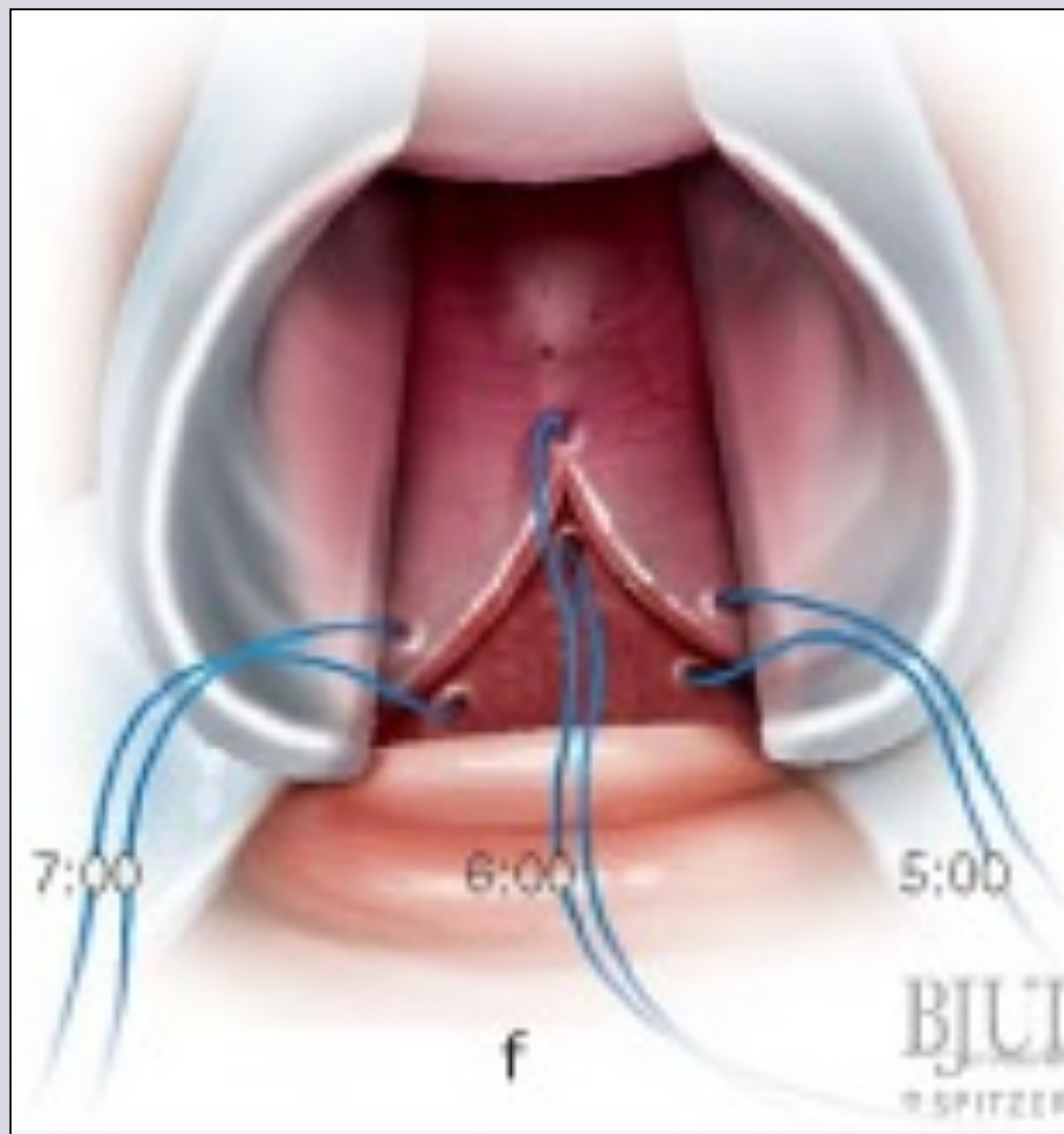
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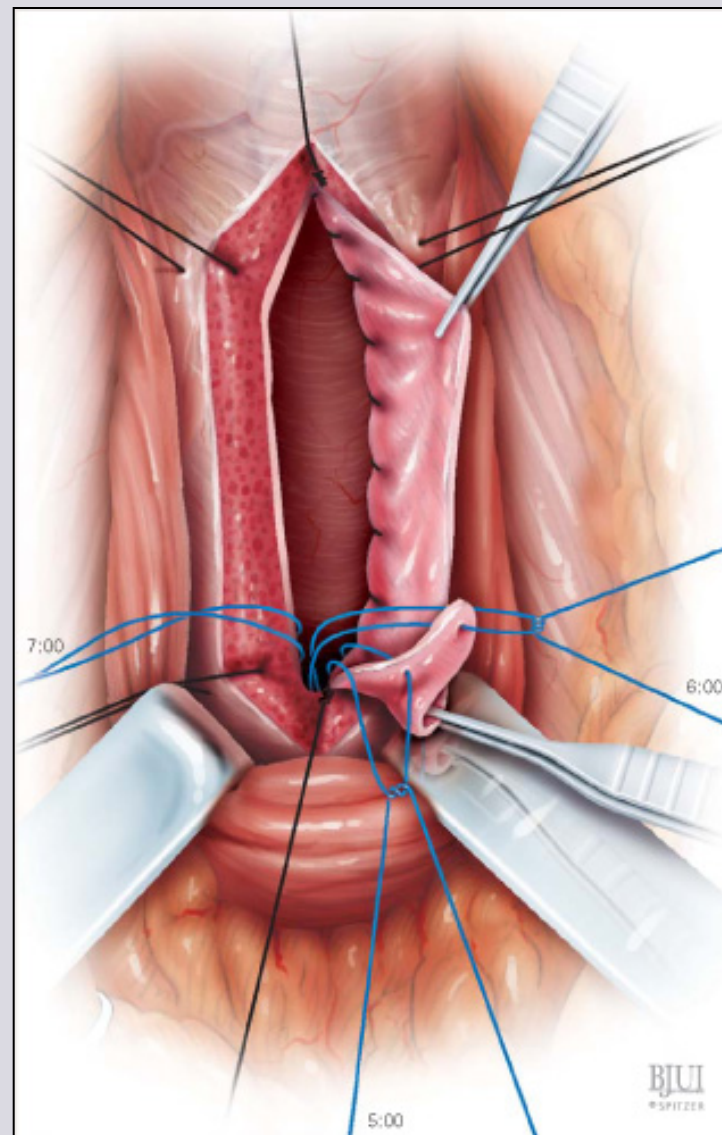
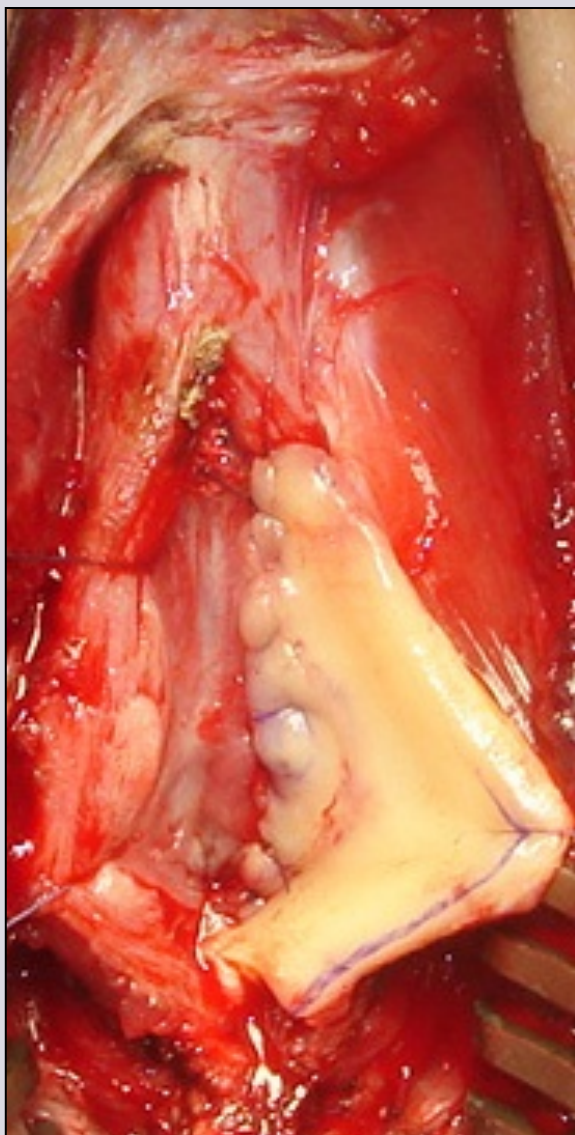
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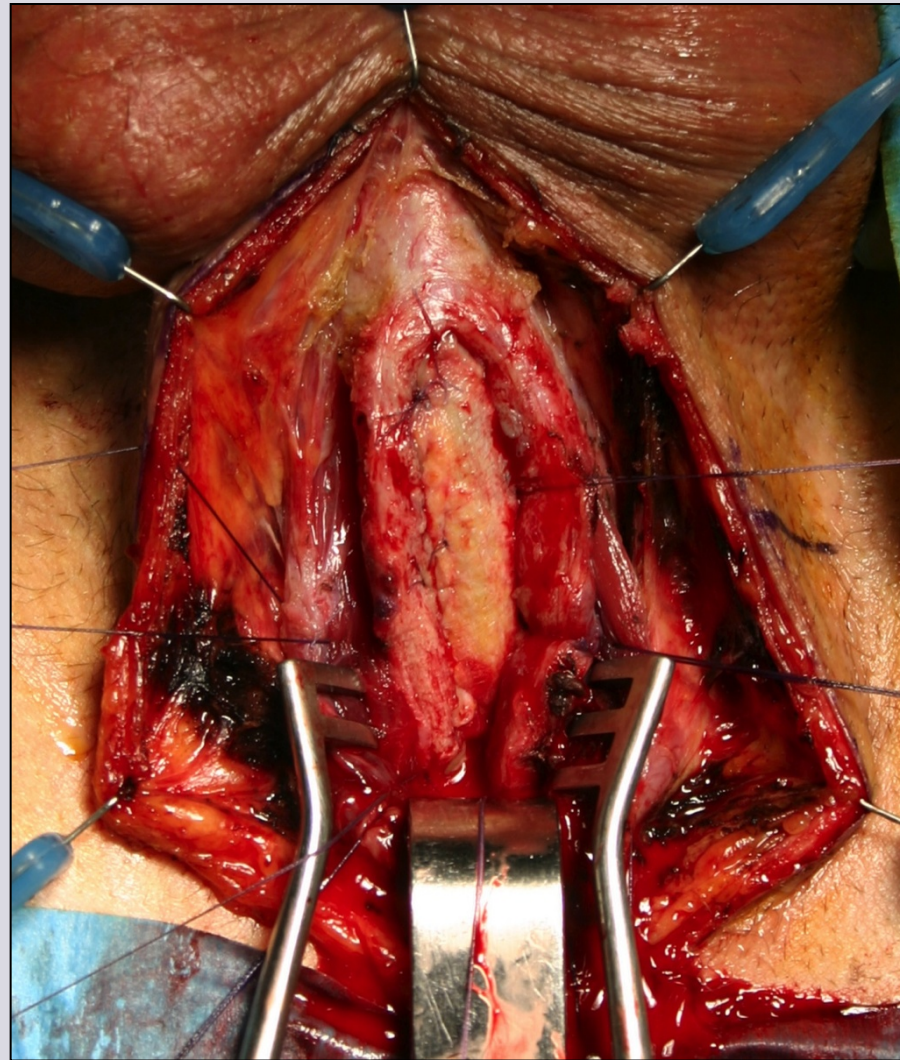
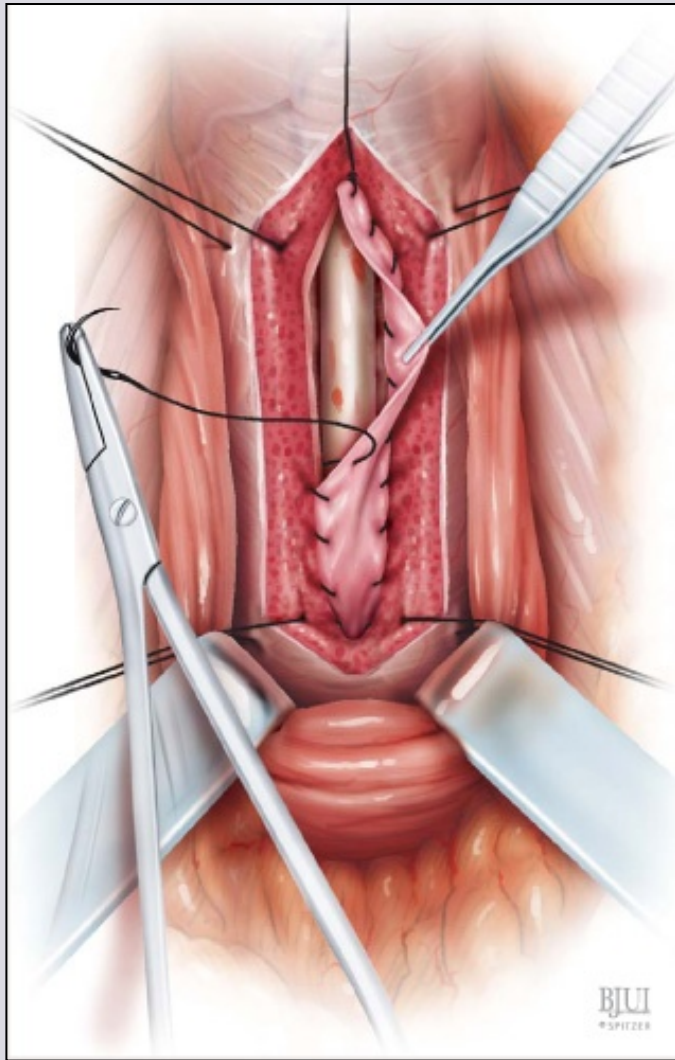
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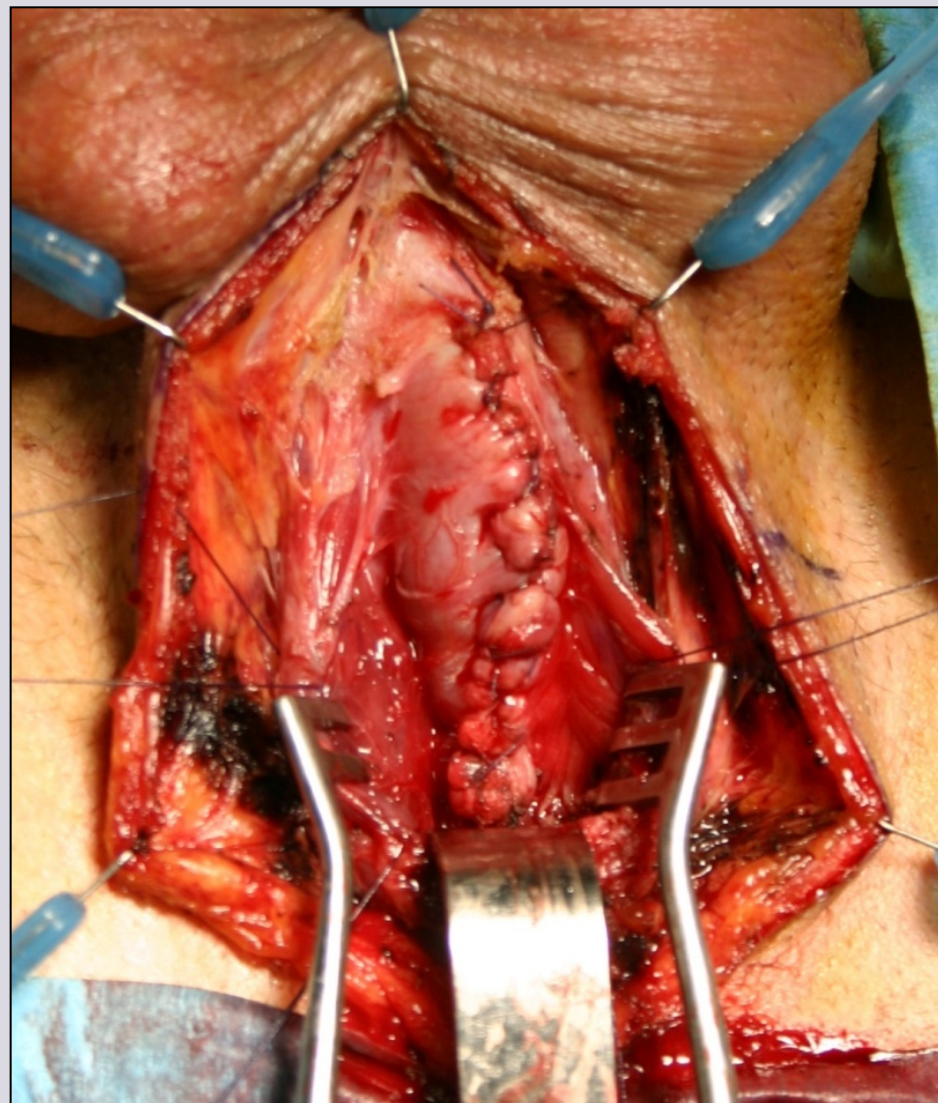
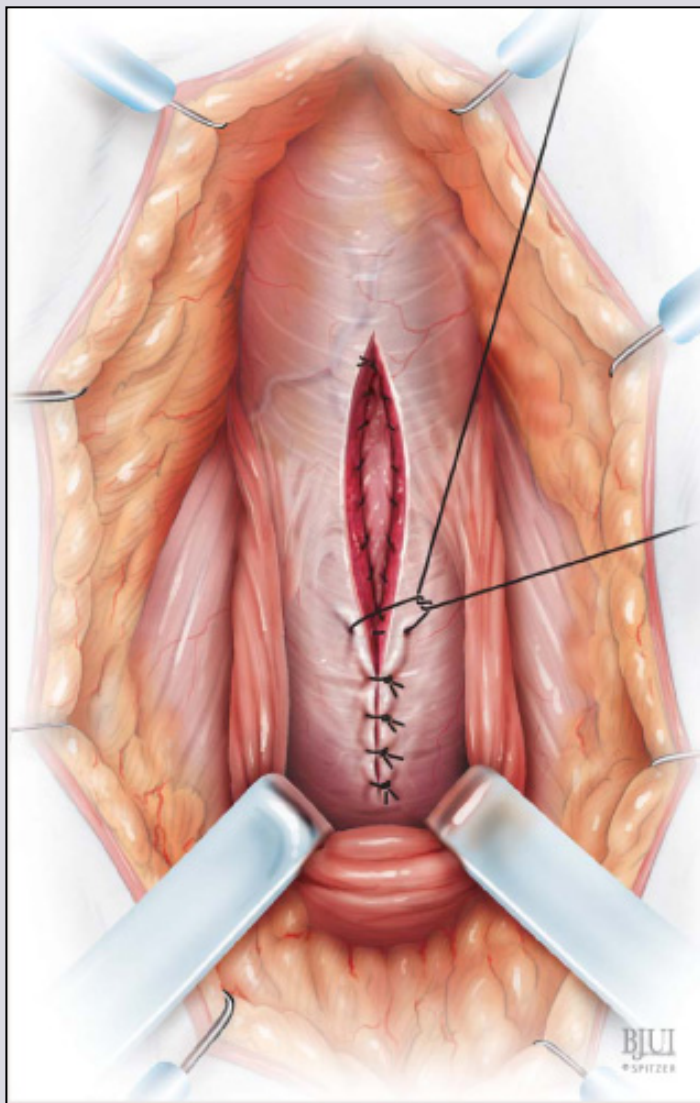




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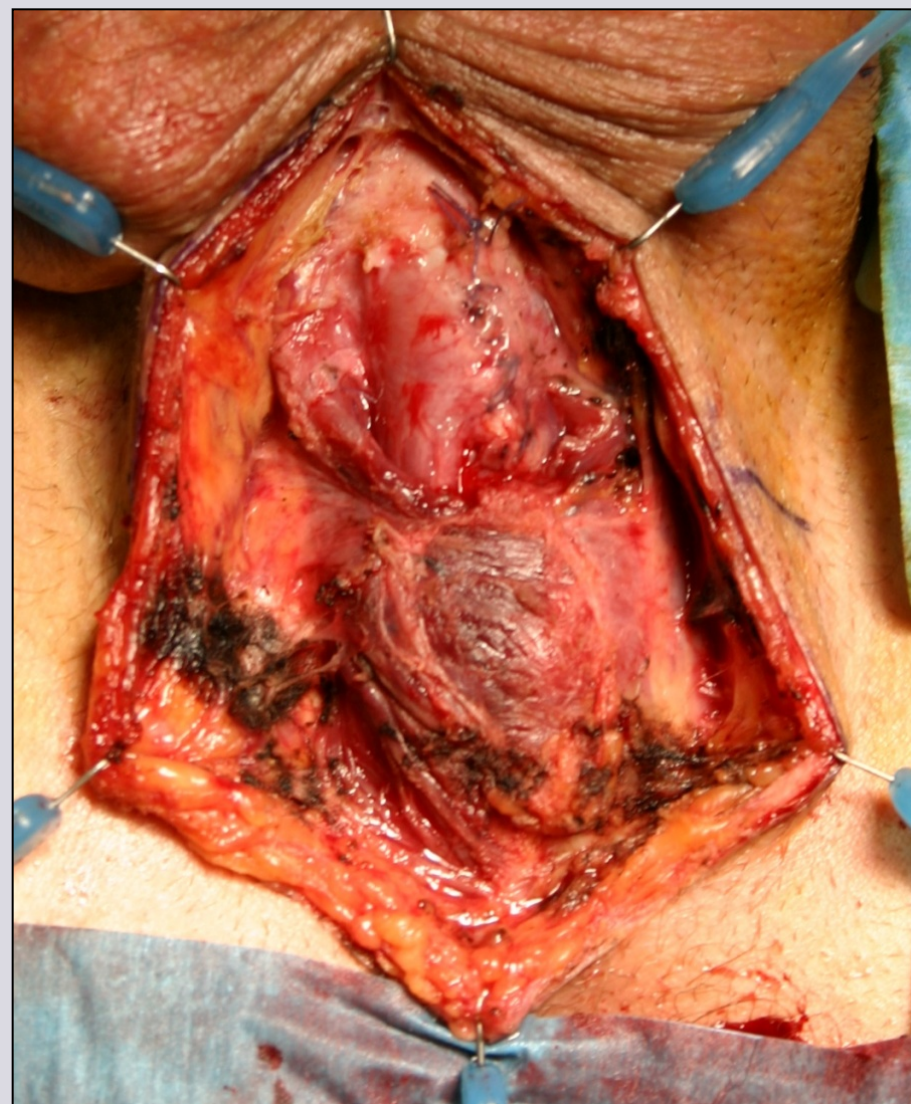
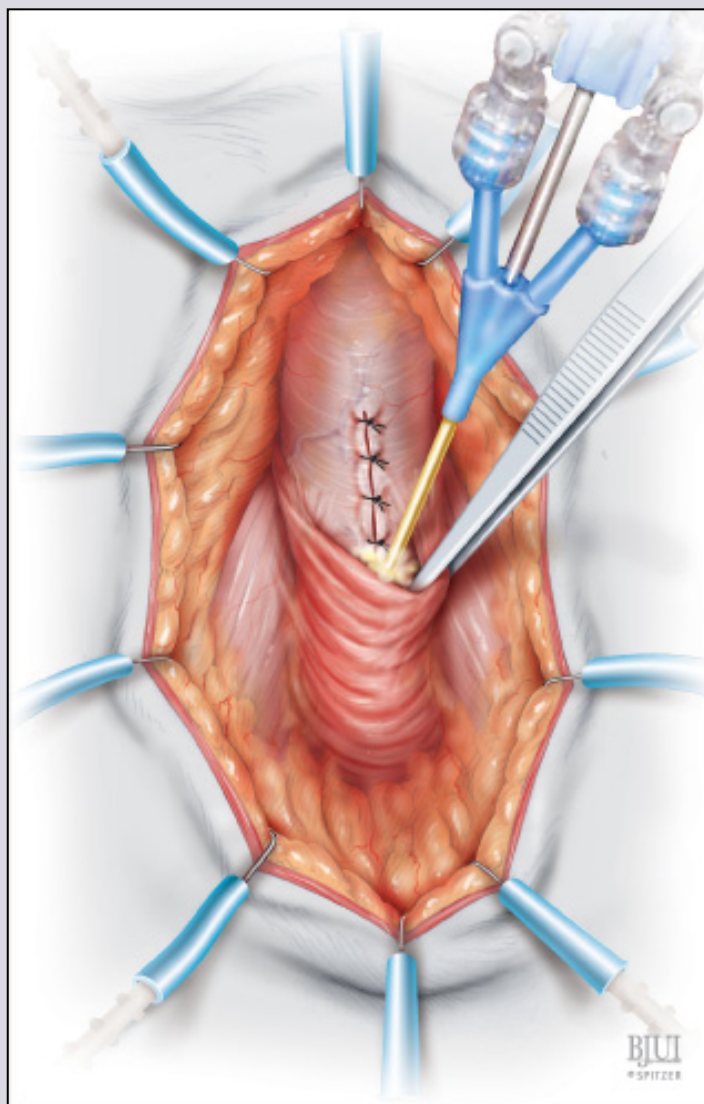




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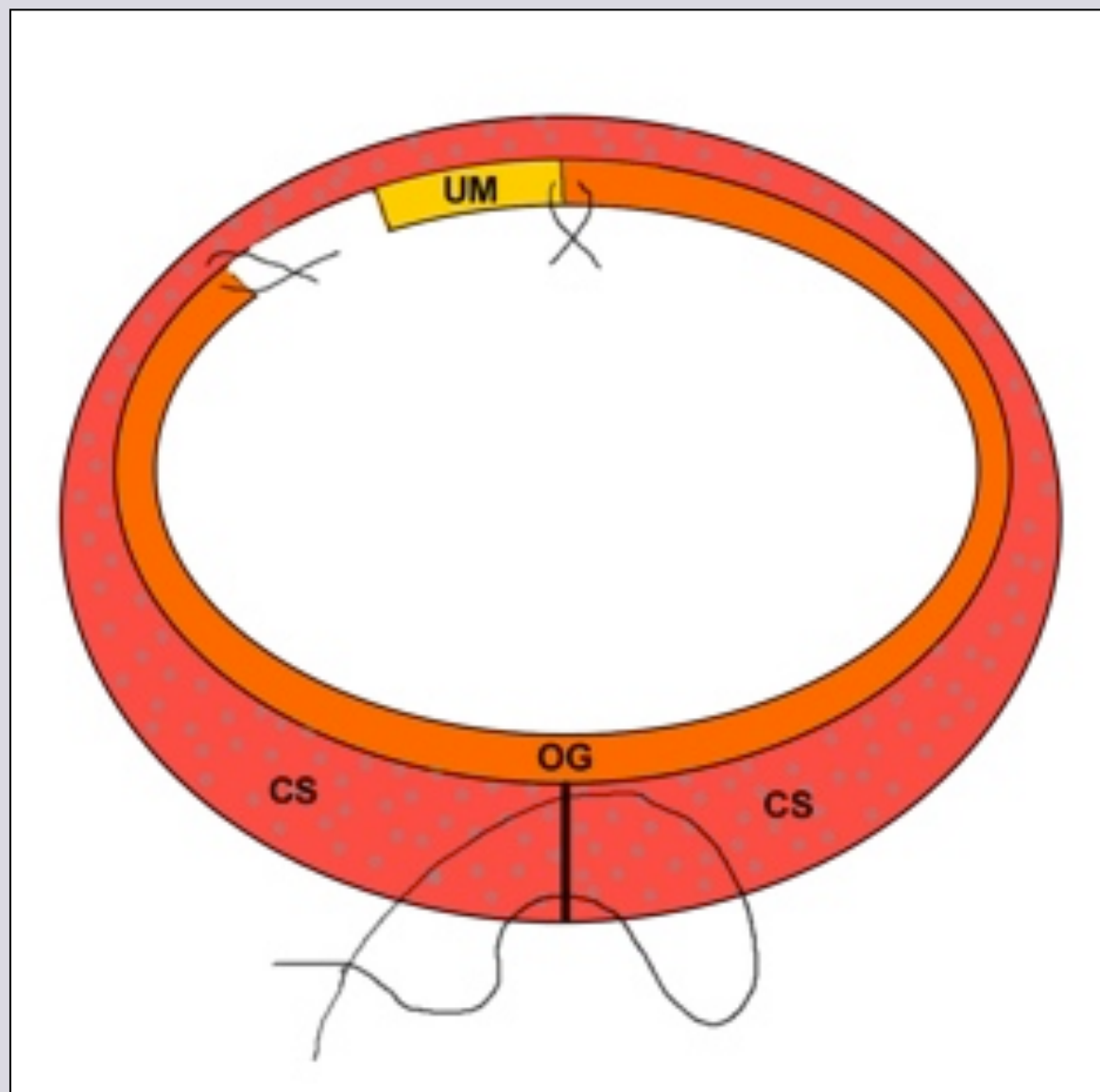
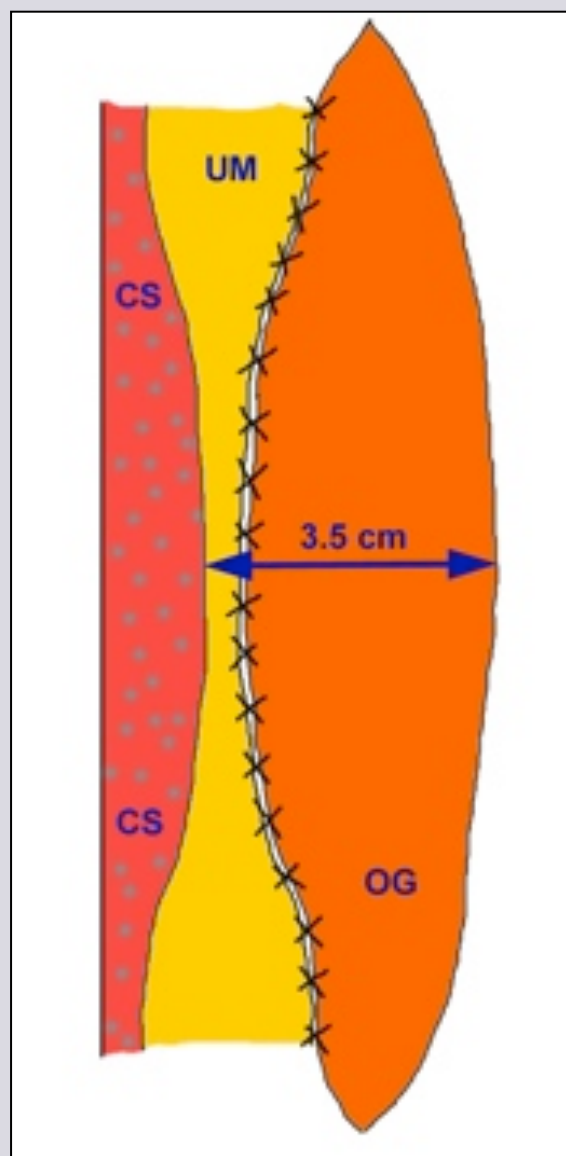


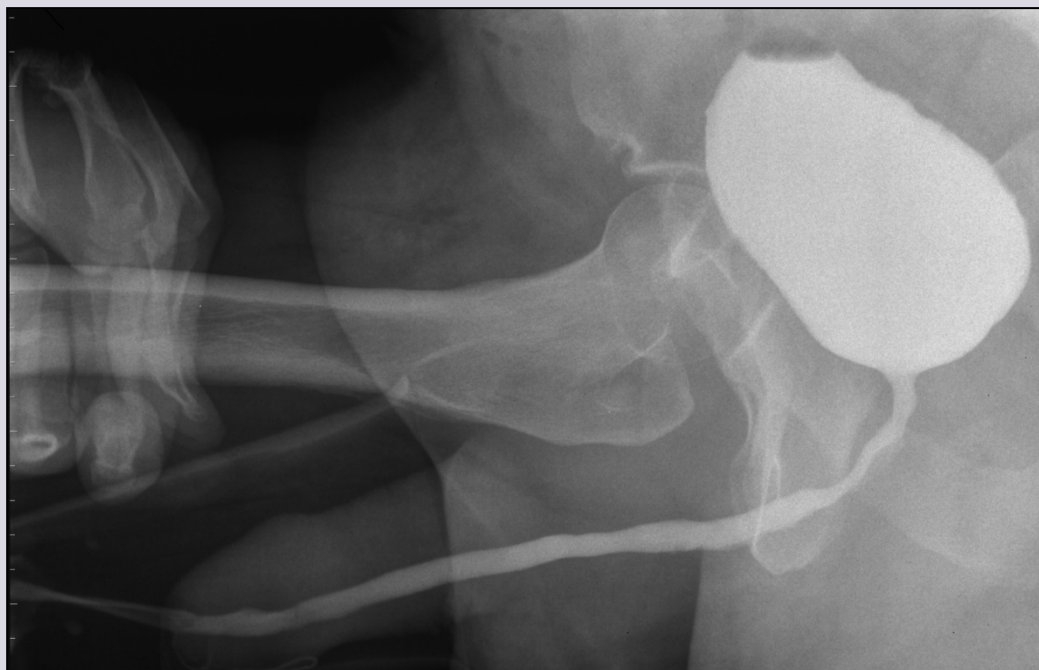
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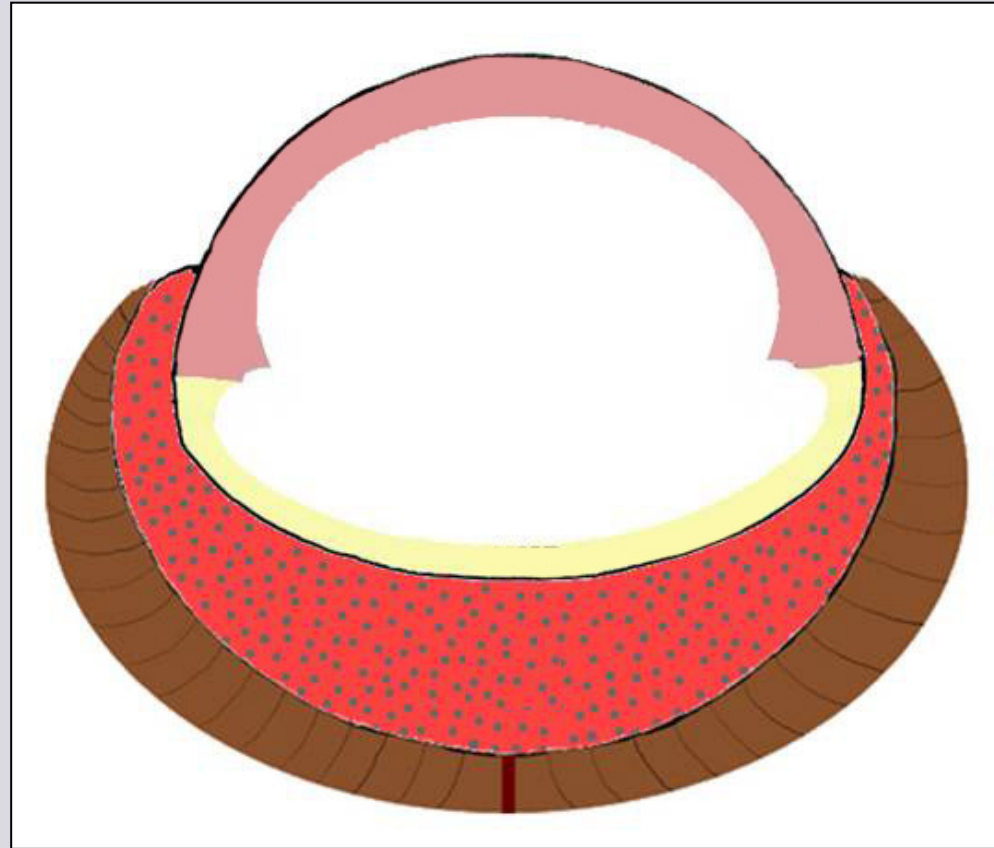


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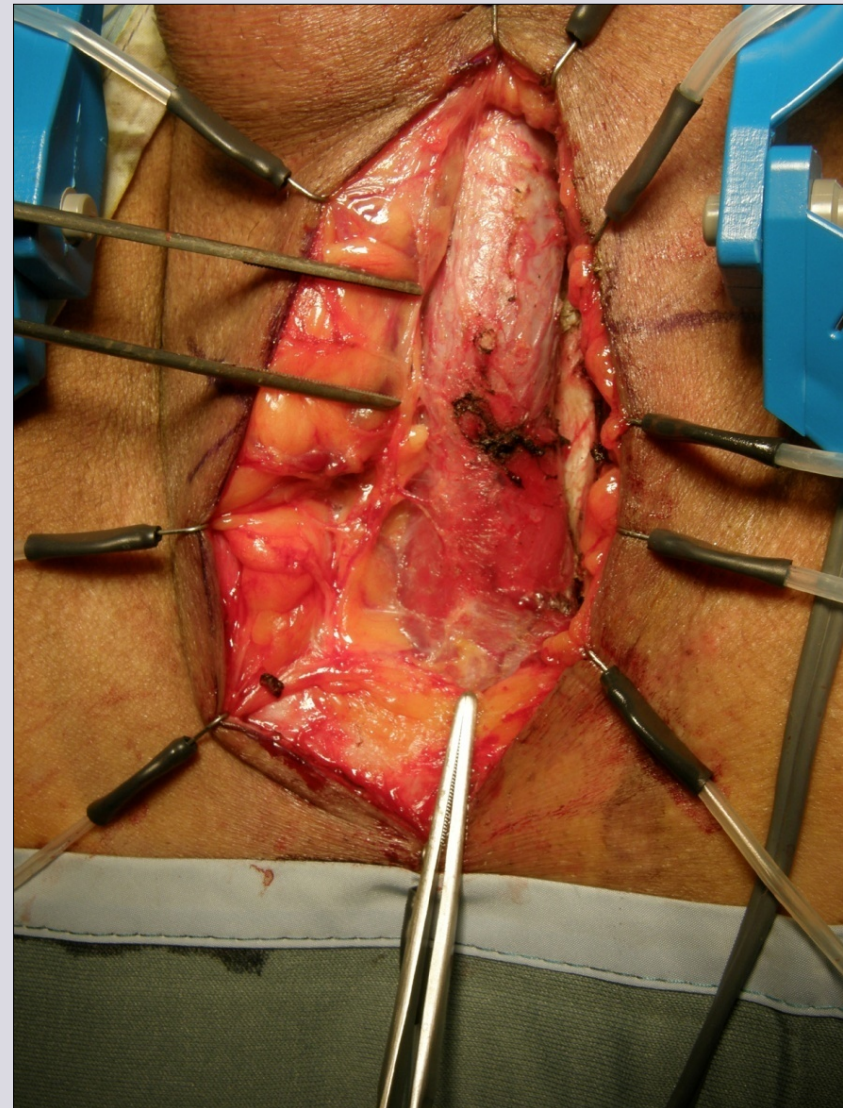
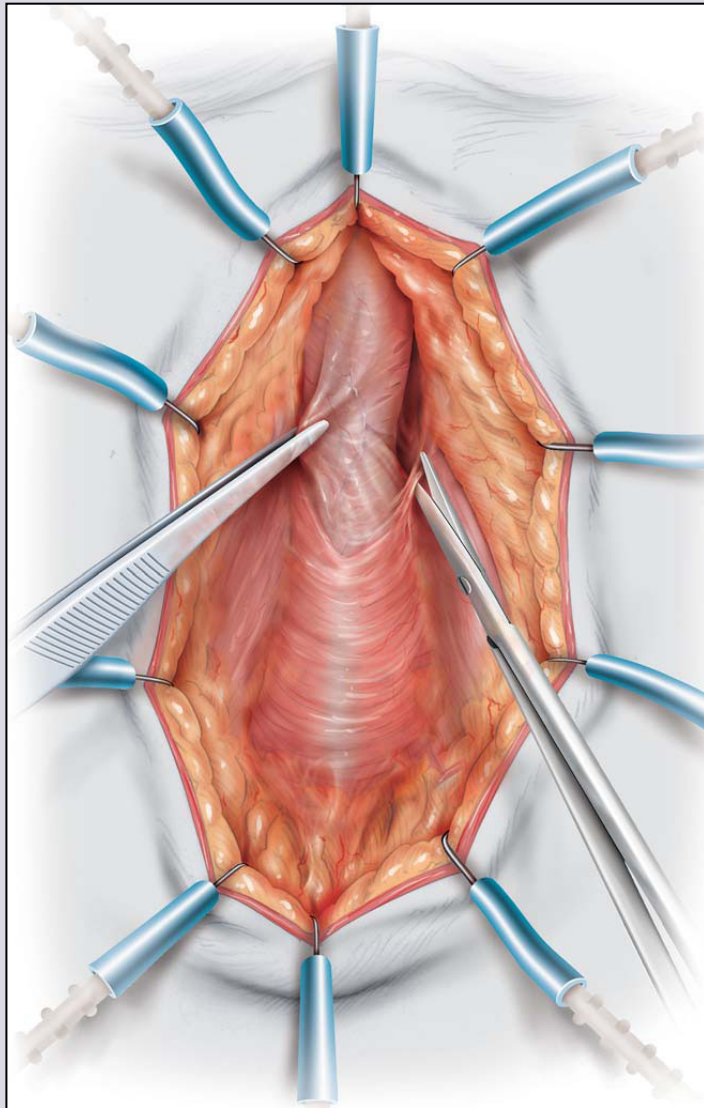
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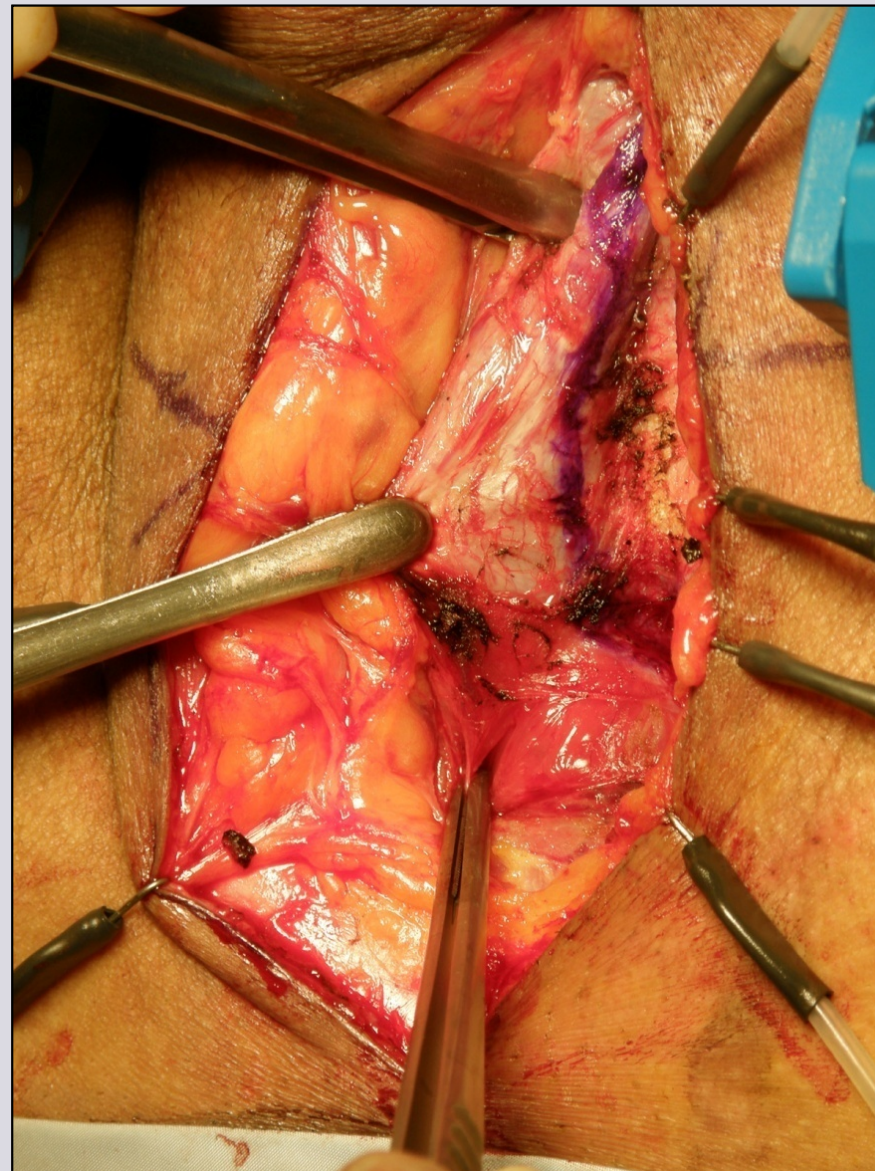
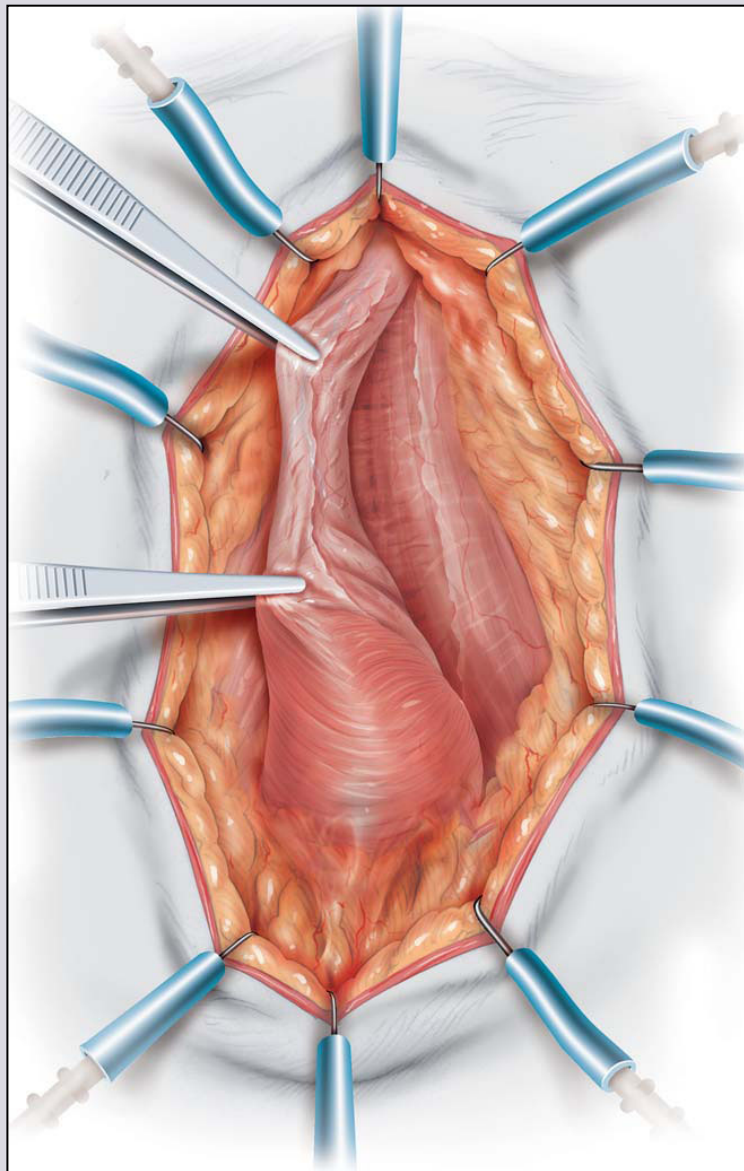
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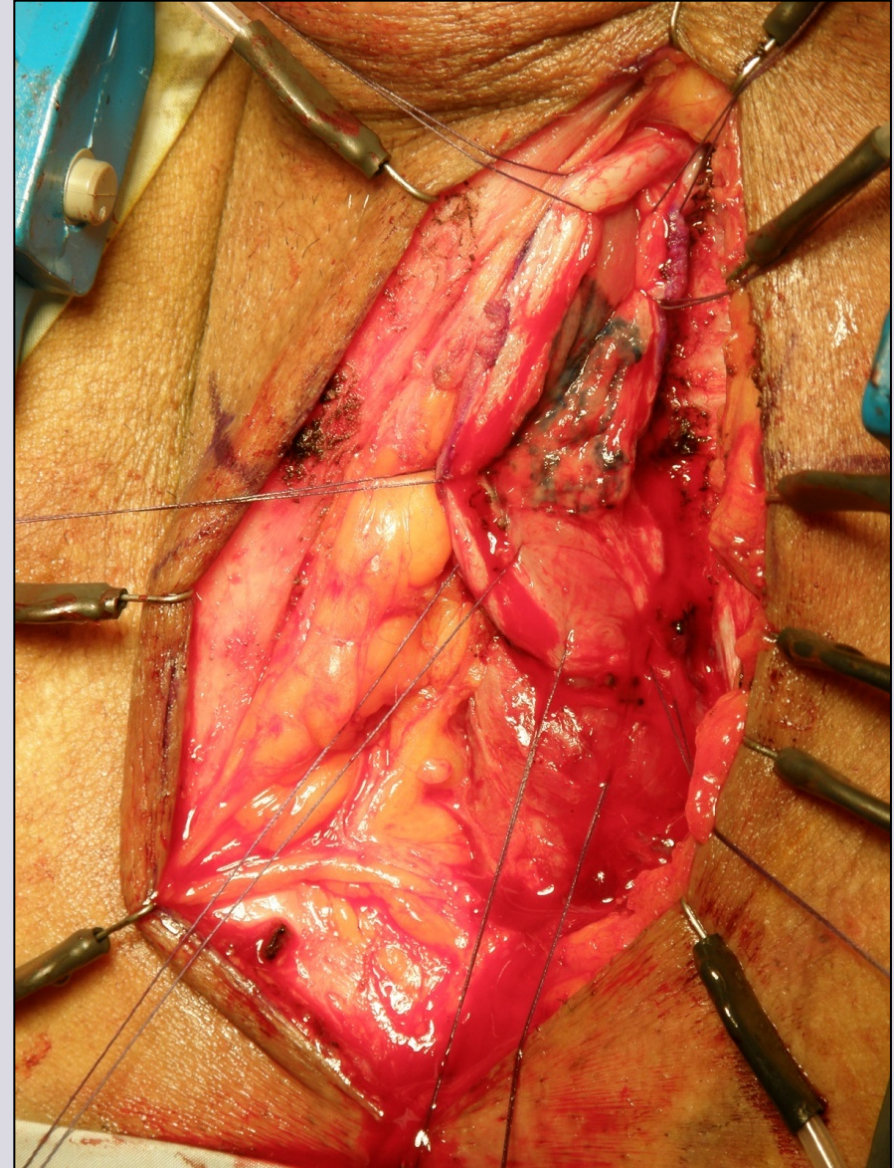
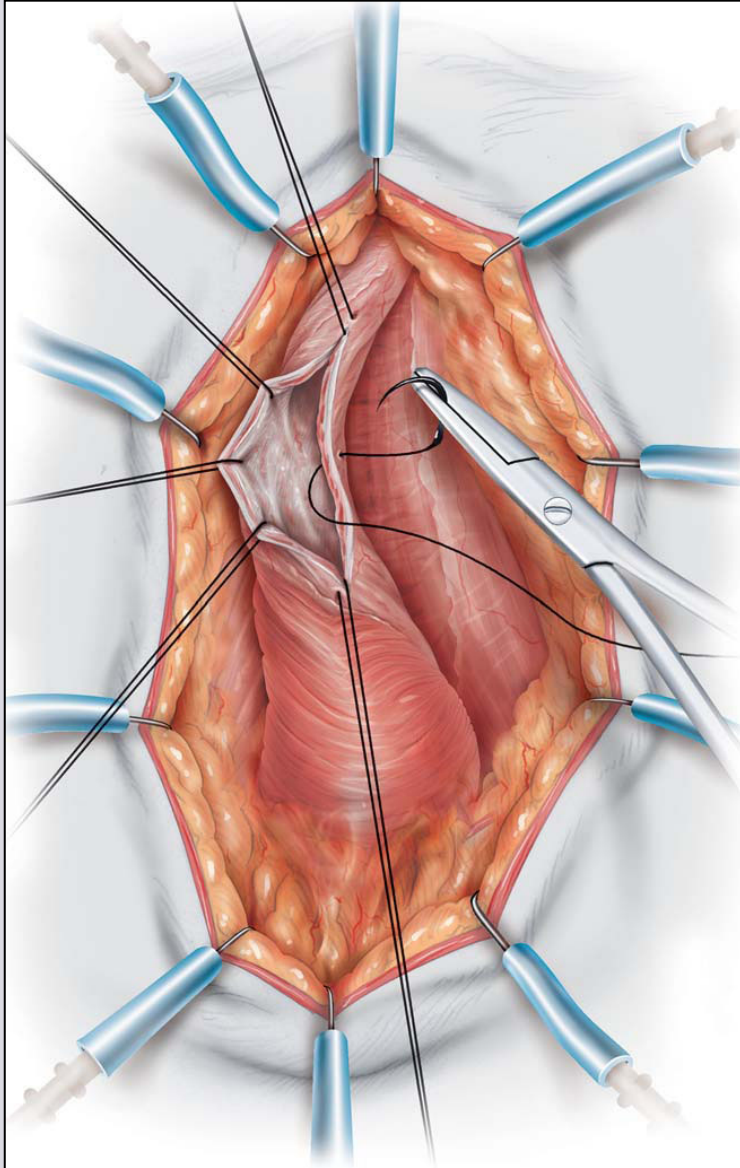




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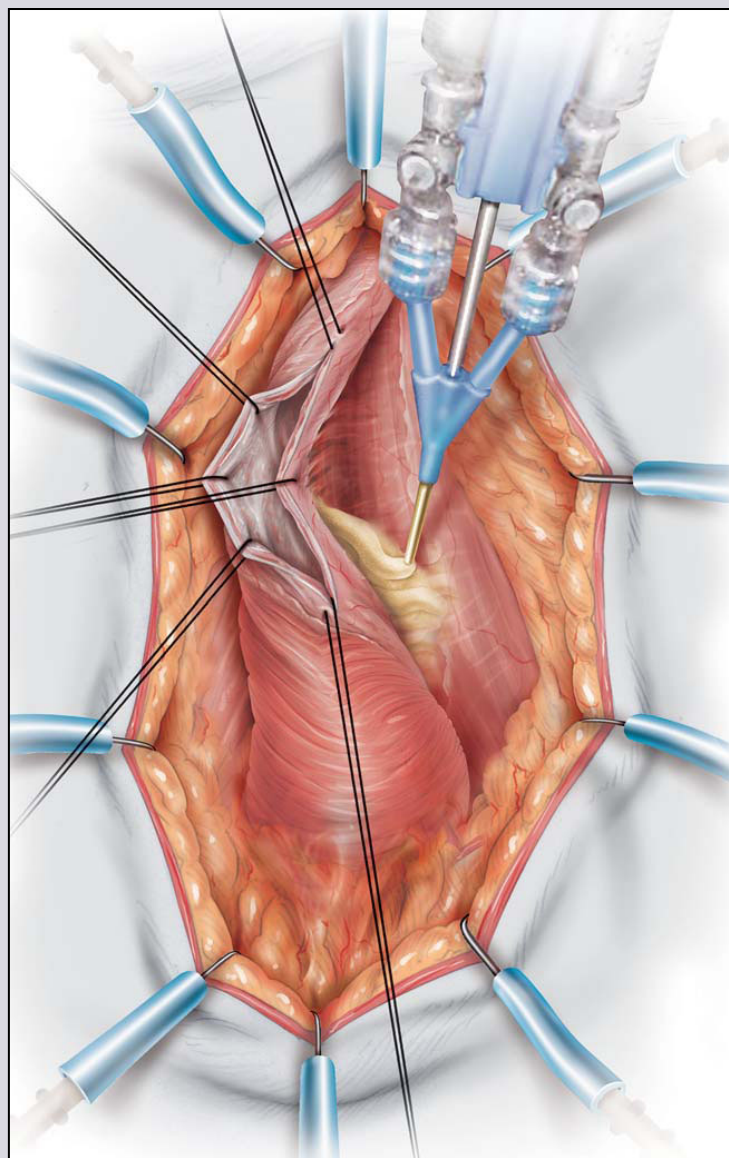




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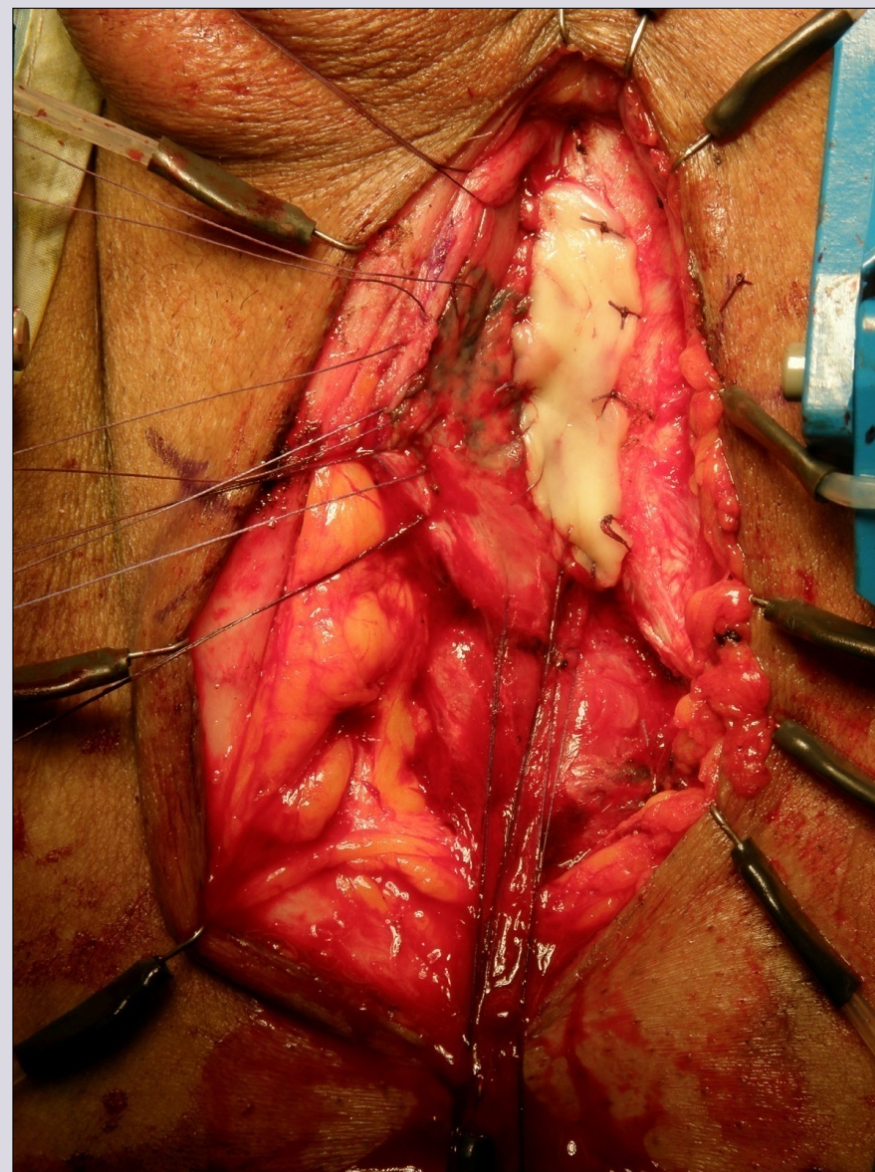
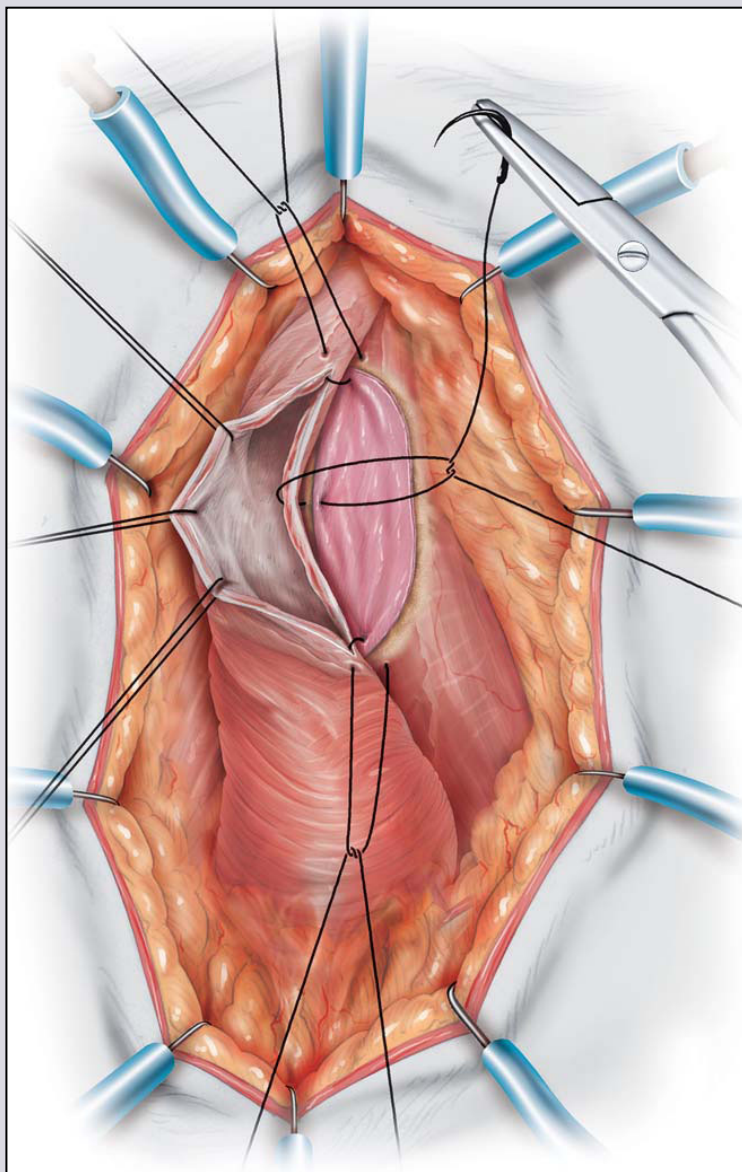
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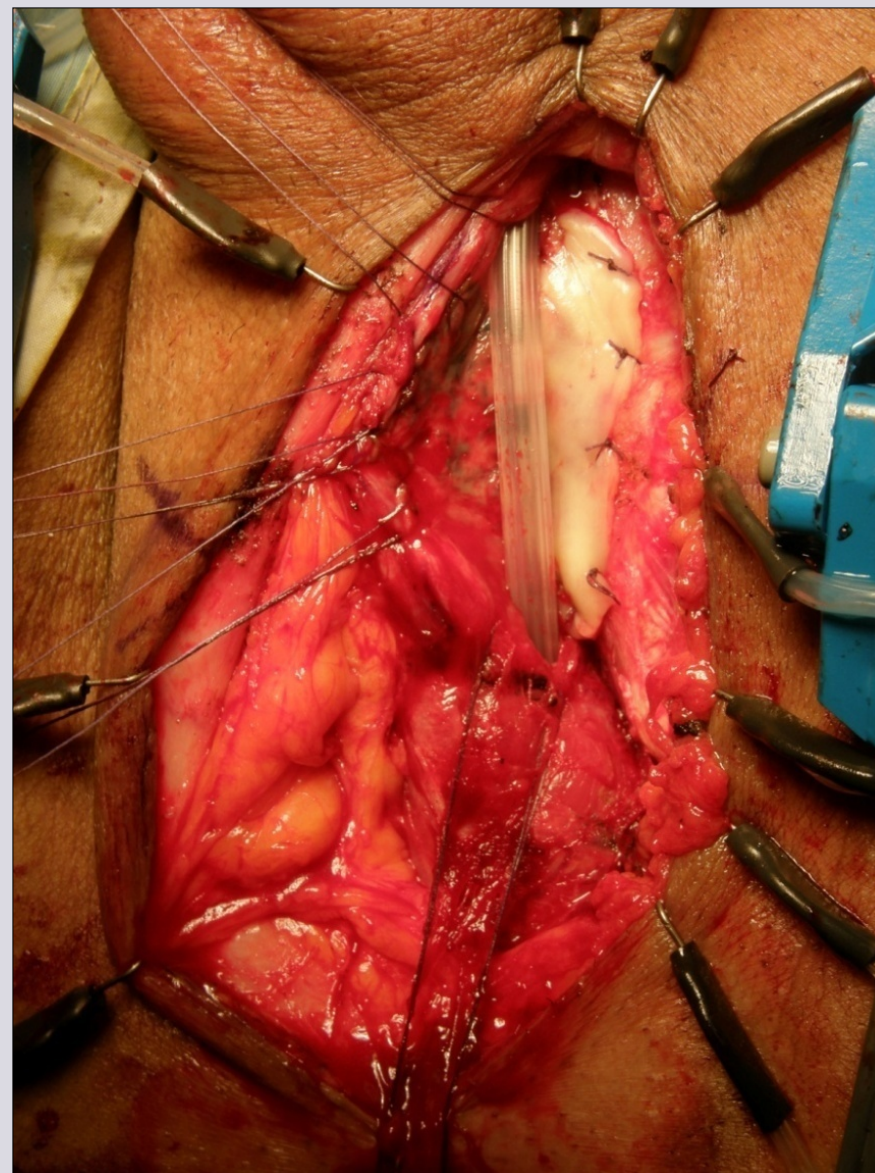
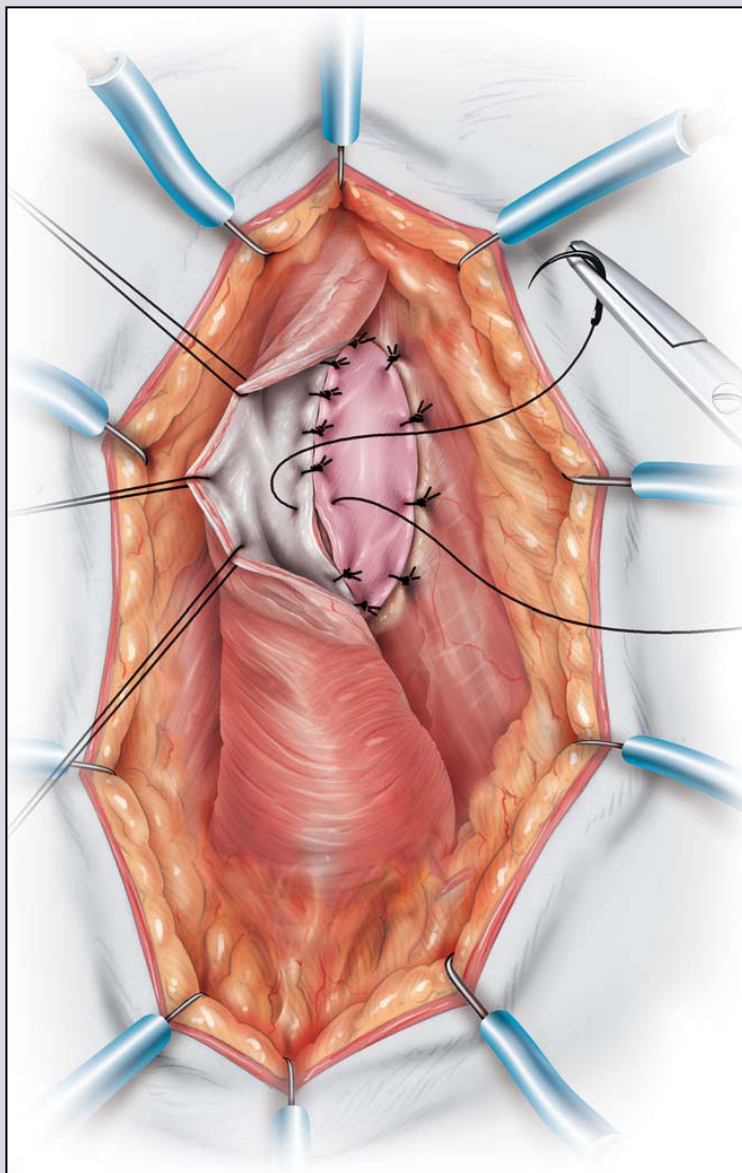
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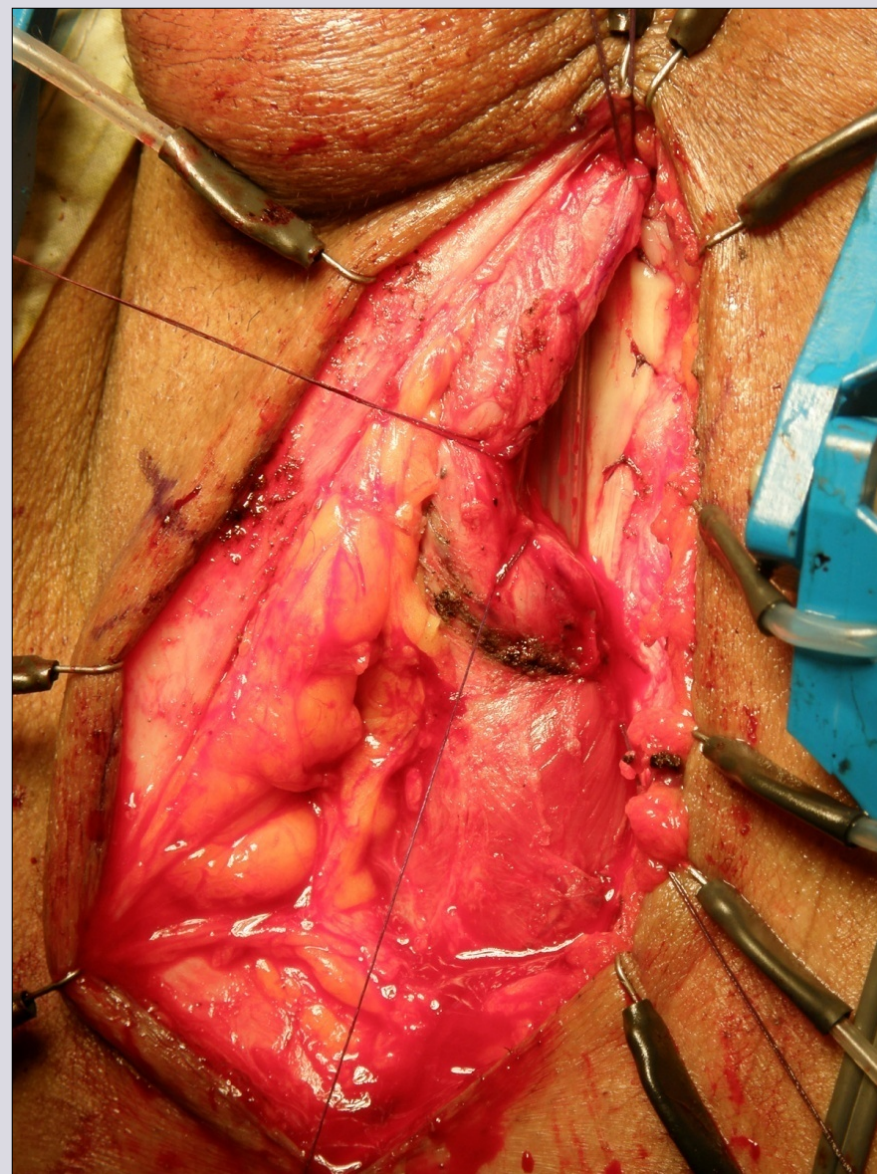
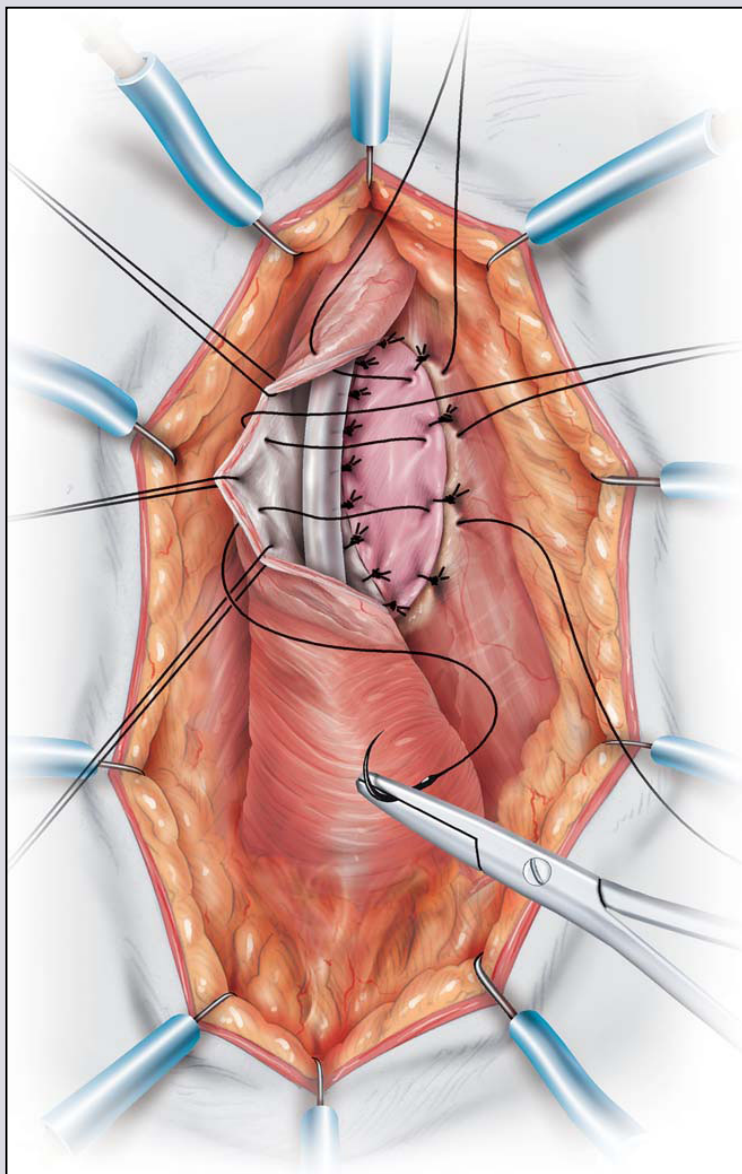




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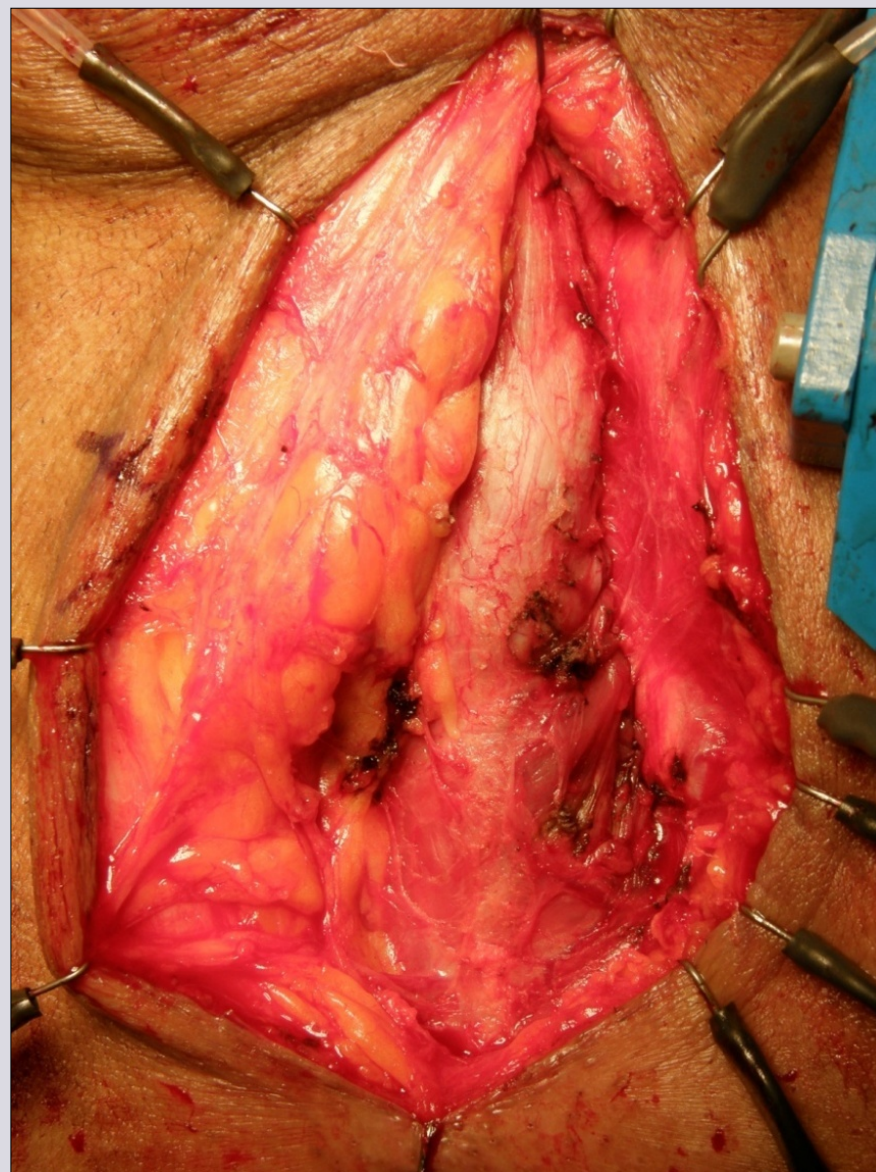
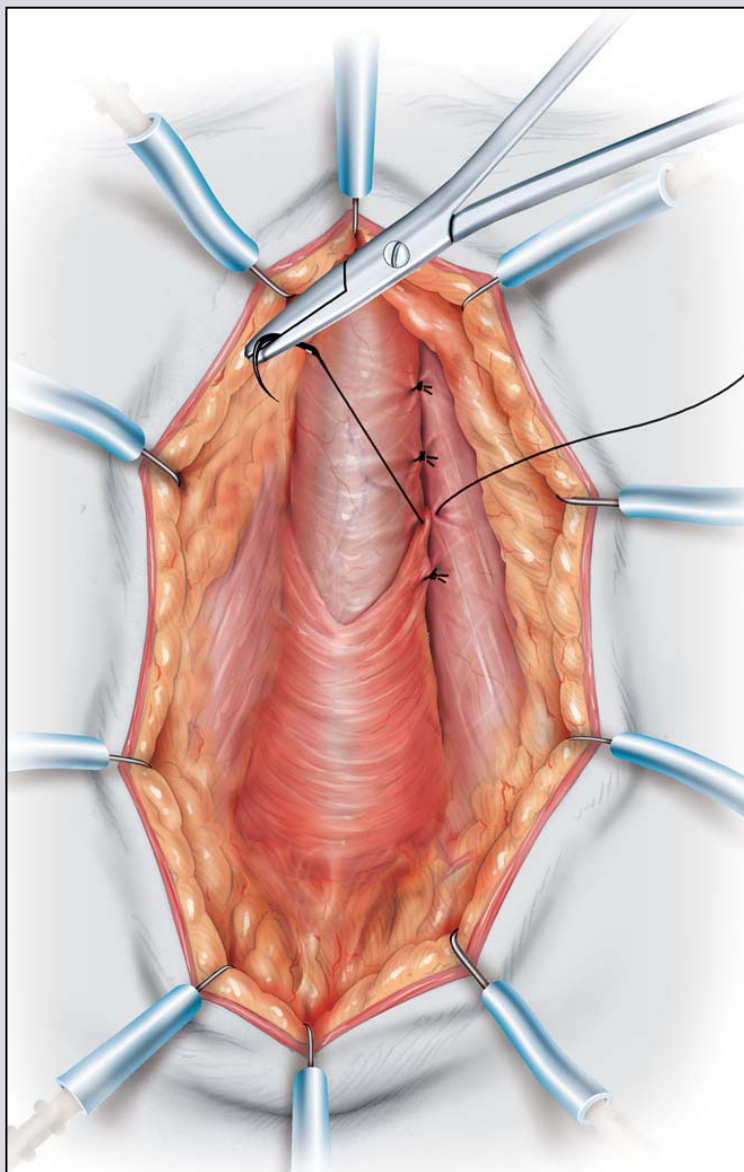




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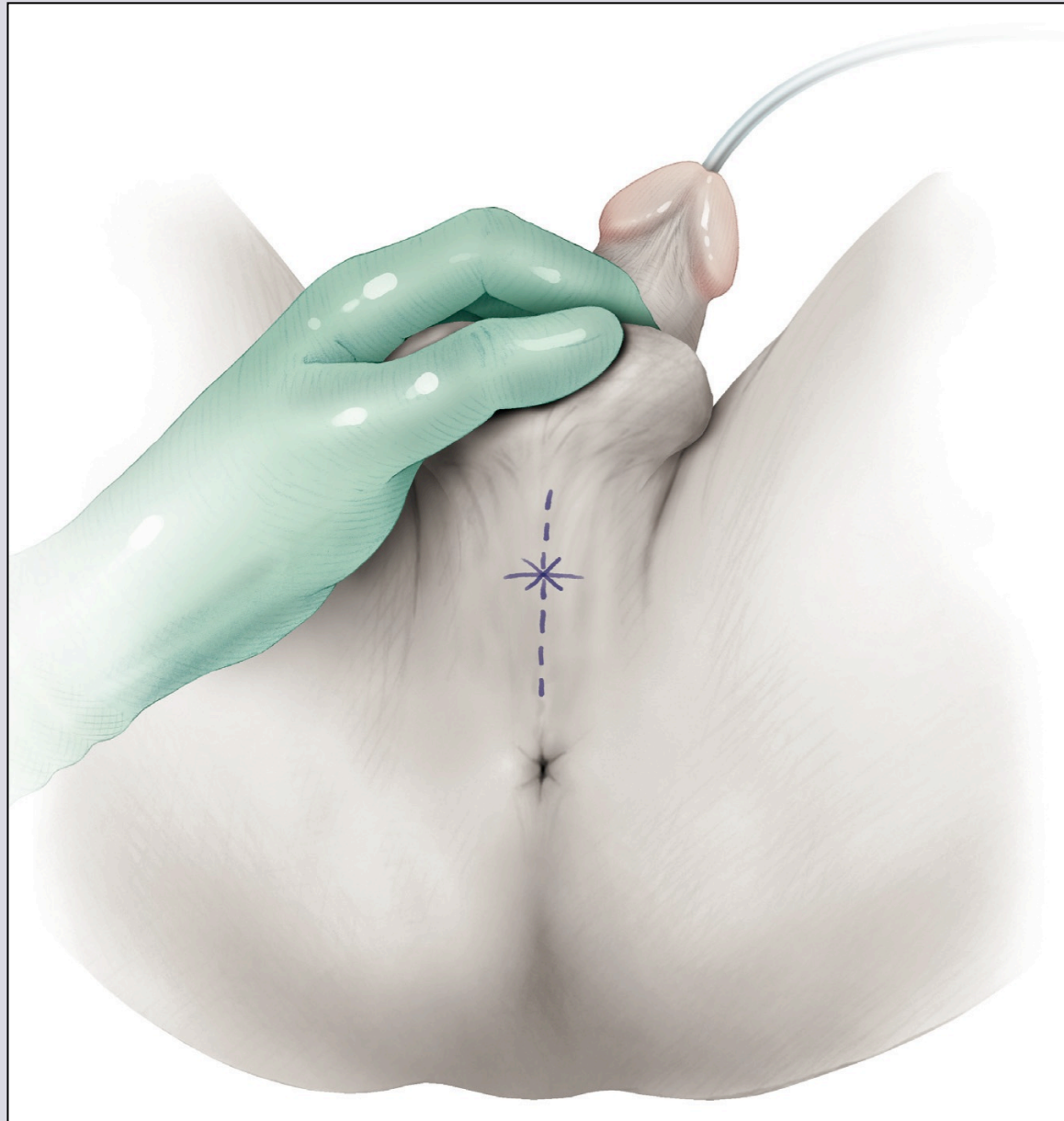


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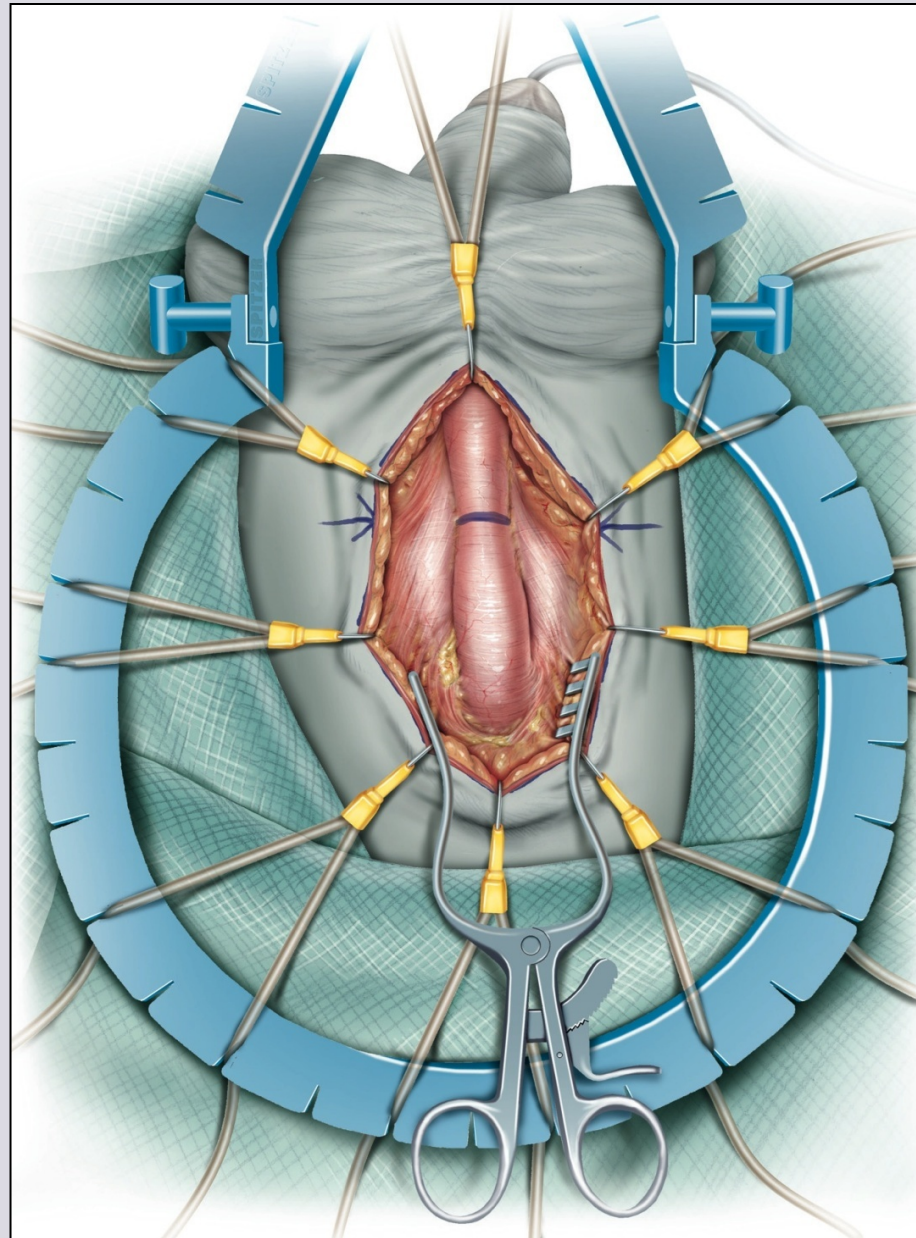
**Reconstruction of the  
bulbar urethra after  
previous failed (dorsal or ventral)  
onlay urethroplasty**





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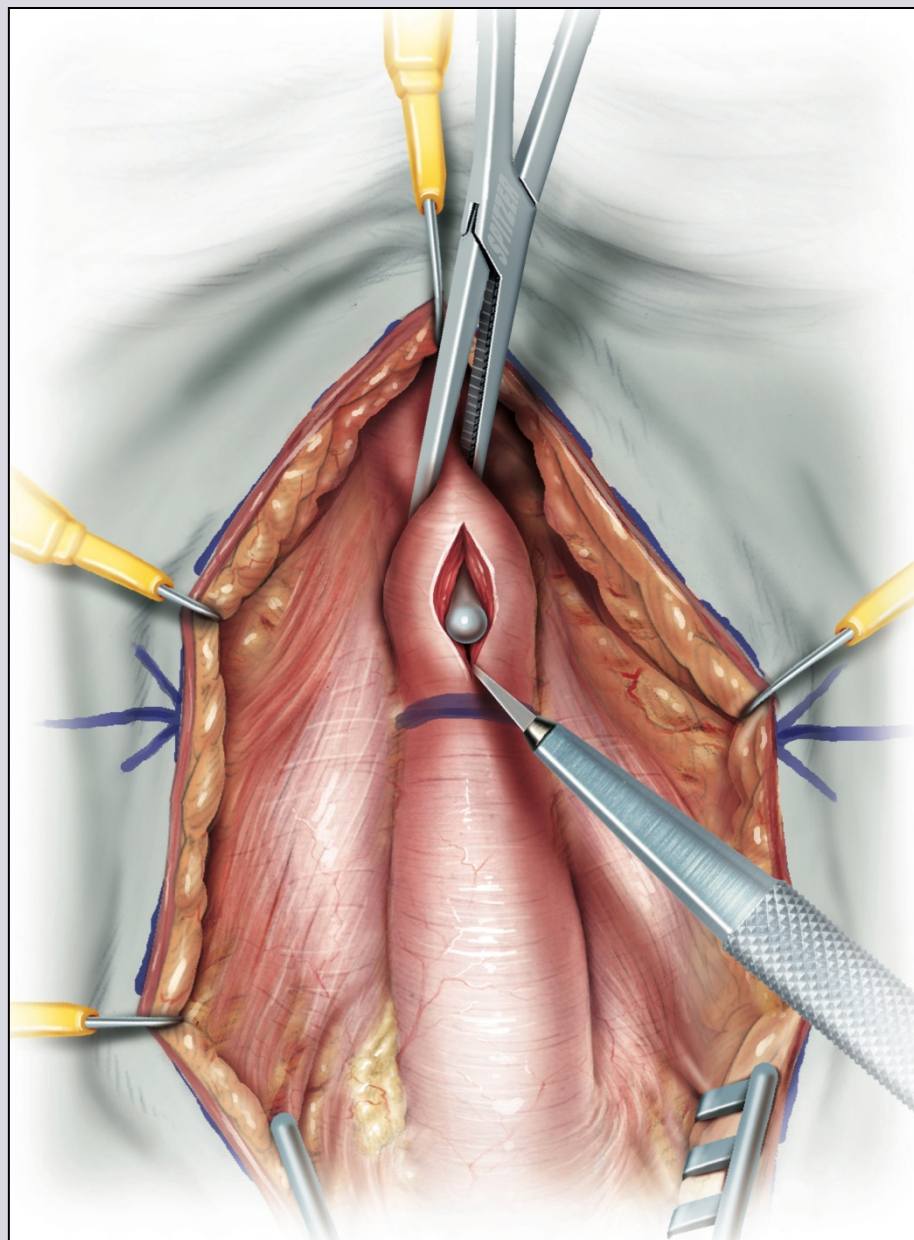
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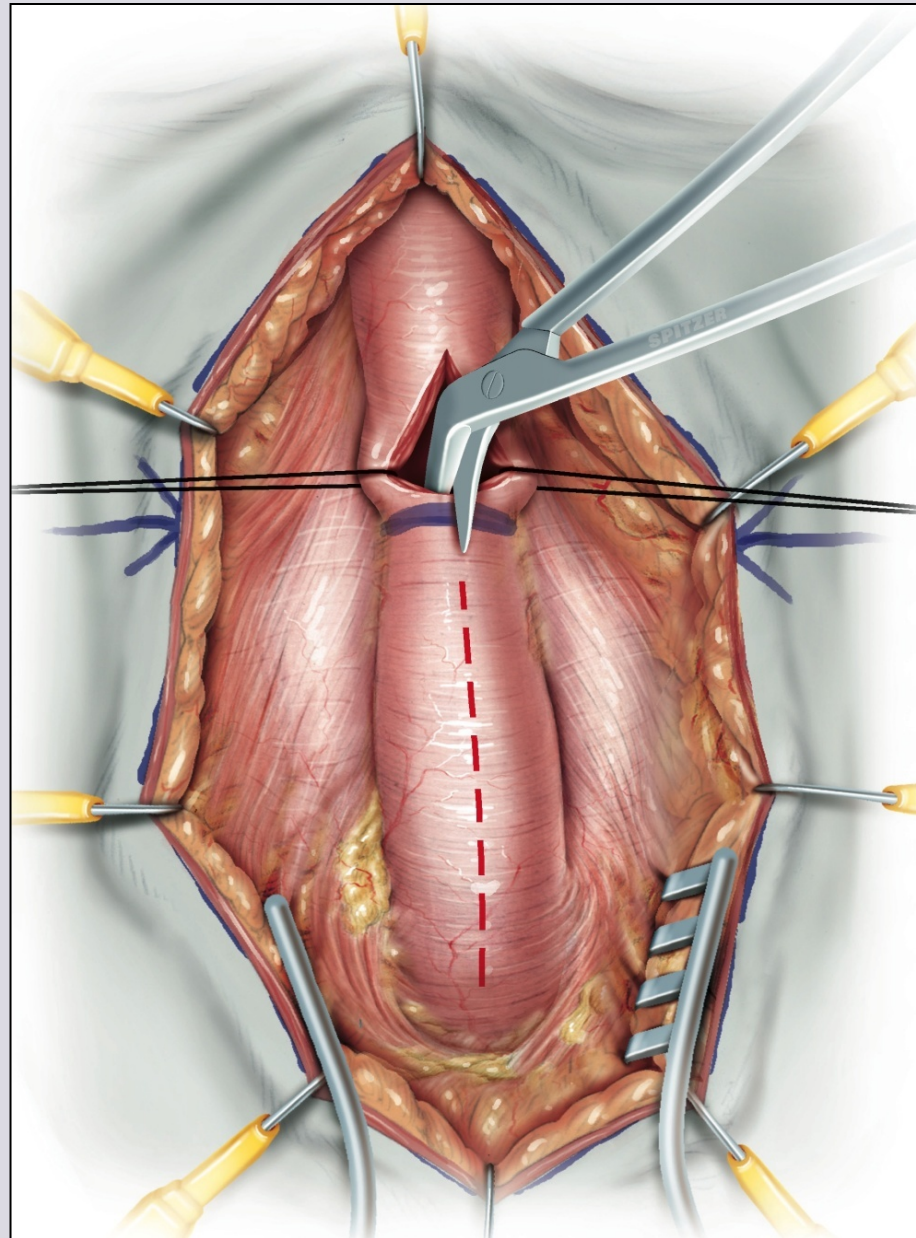
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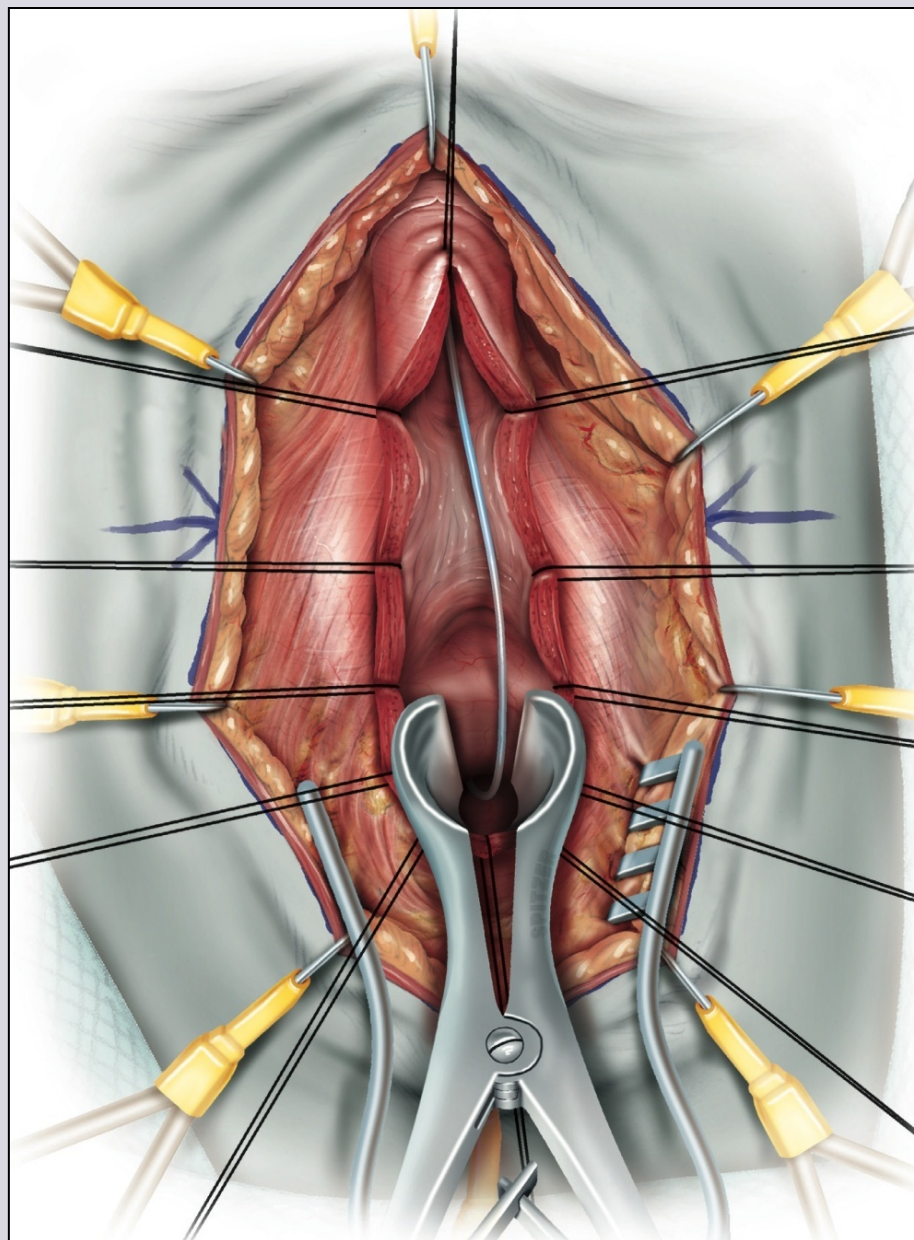
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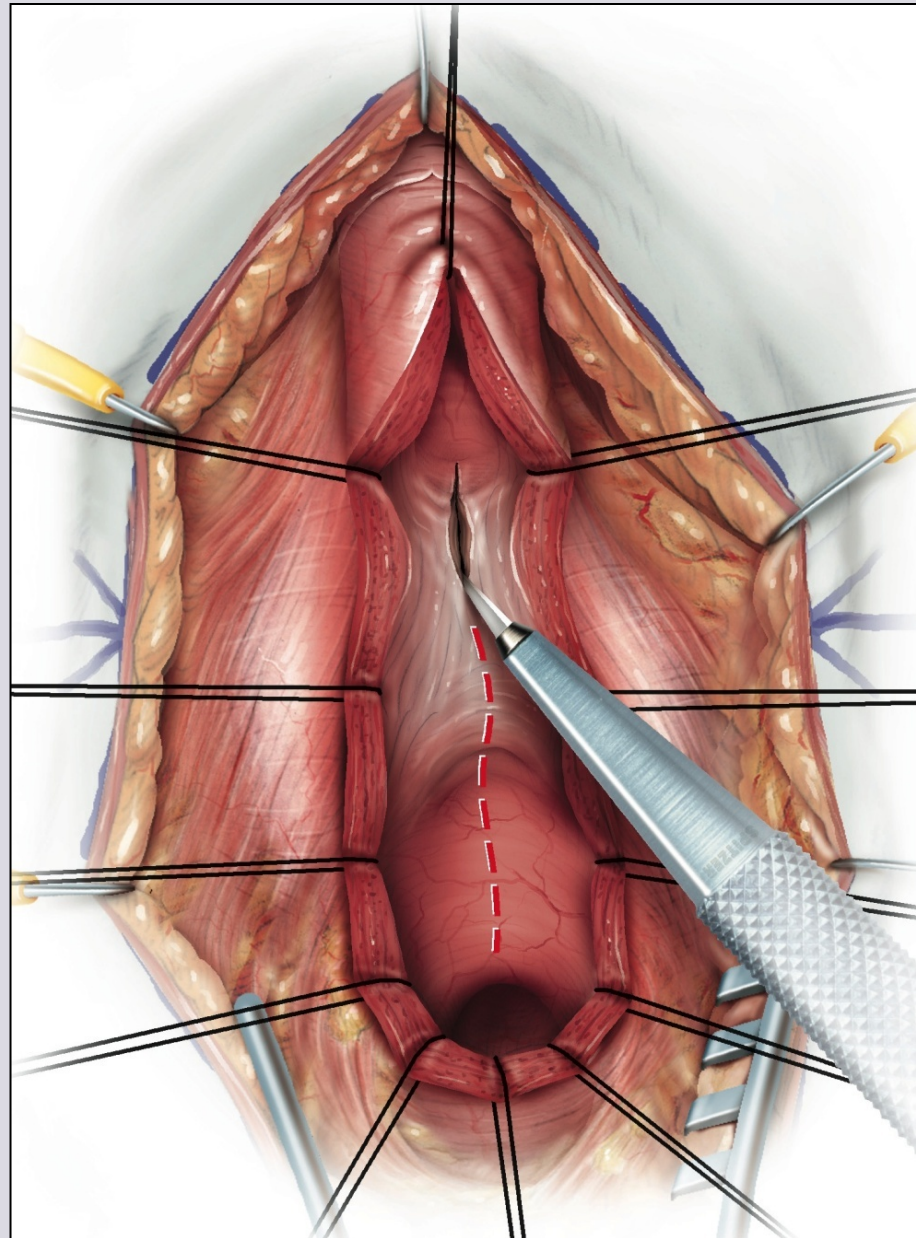
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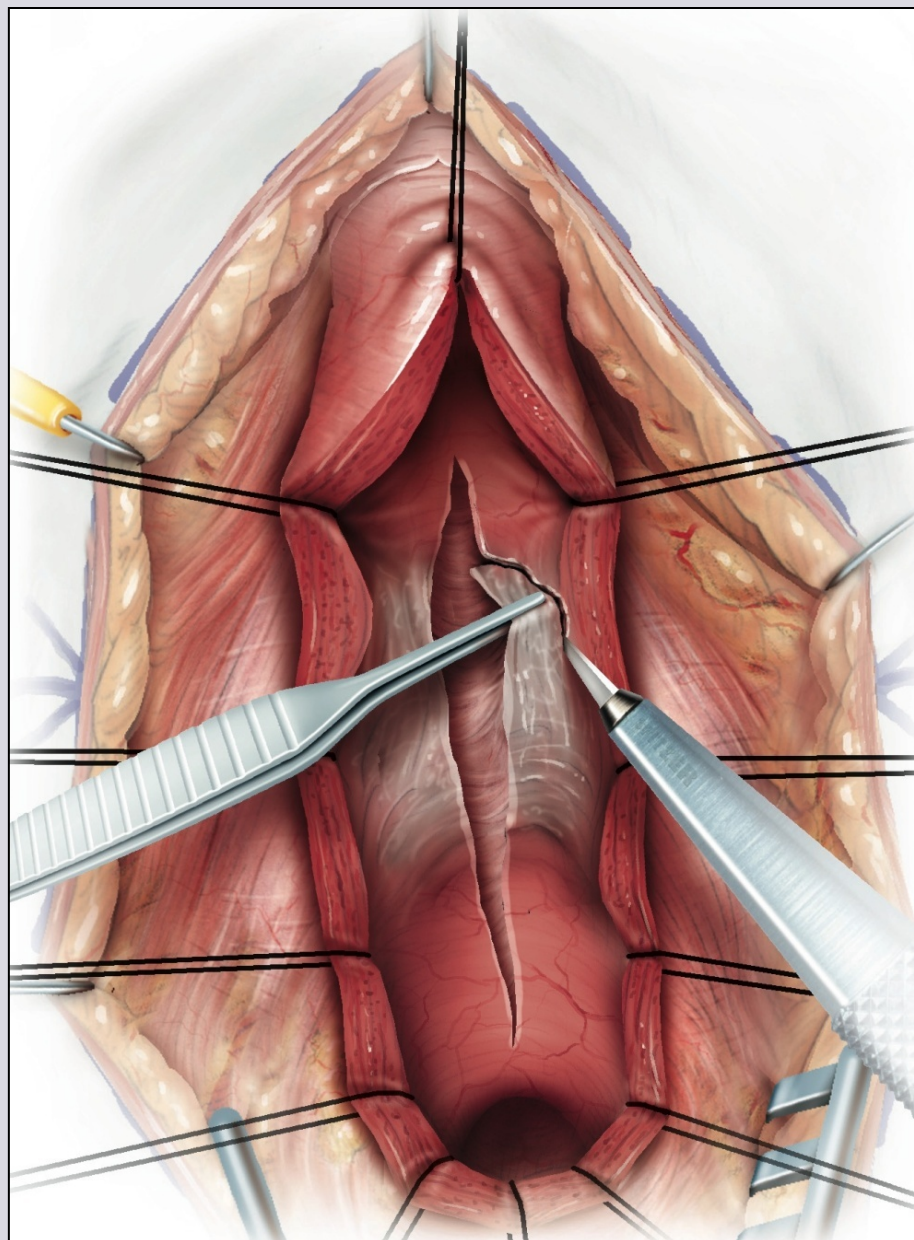
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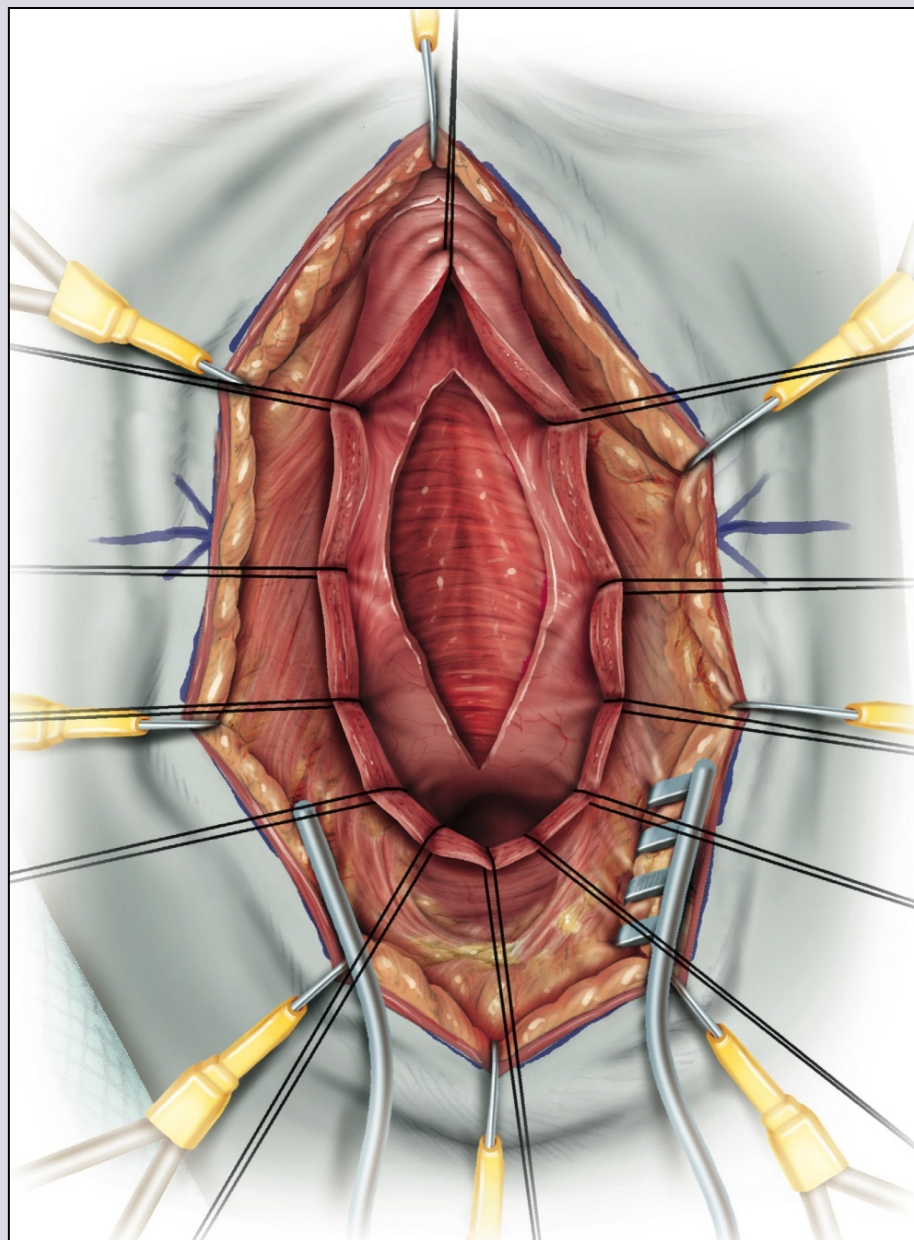
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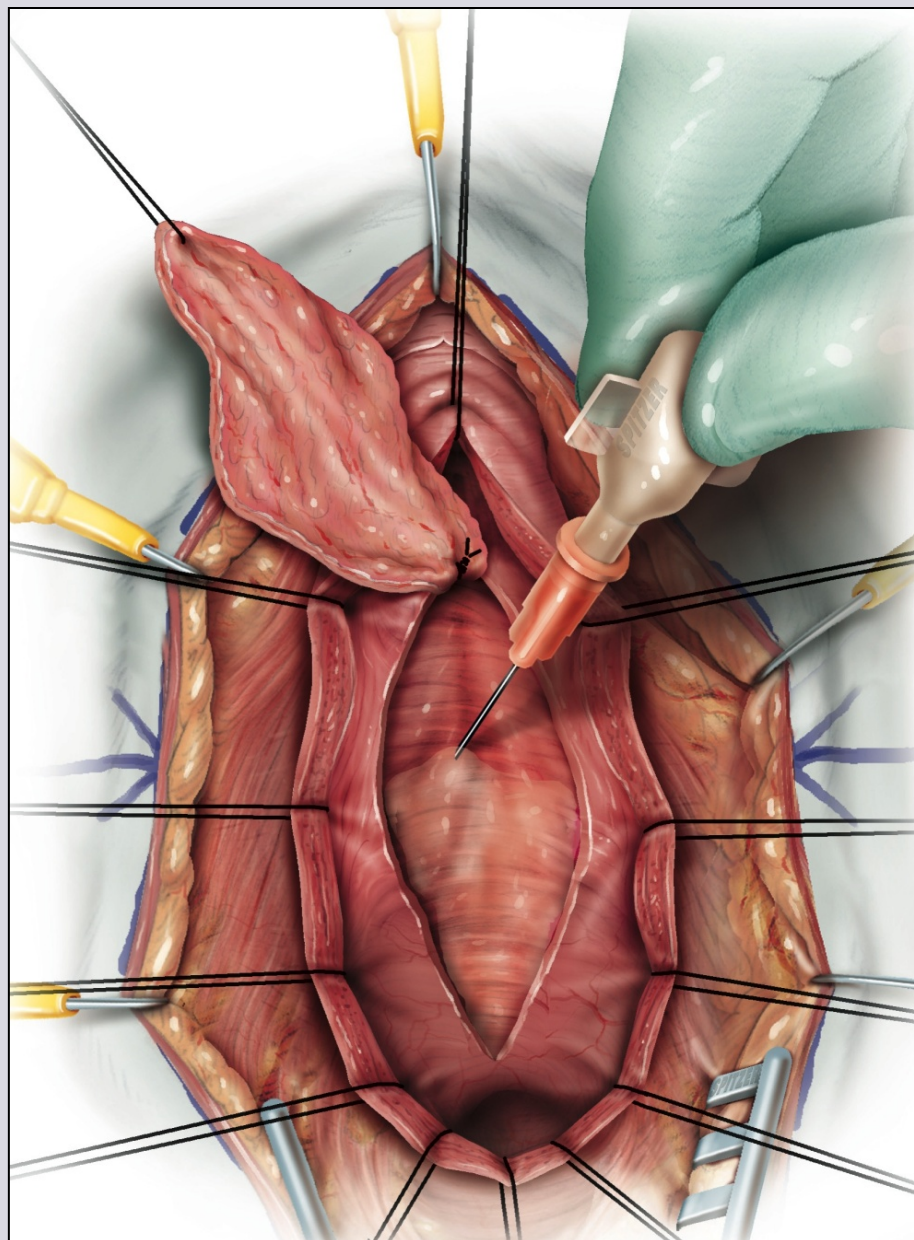
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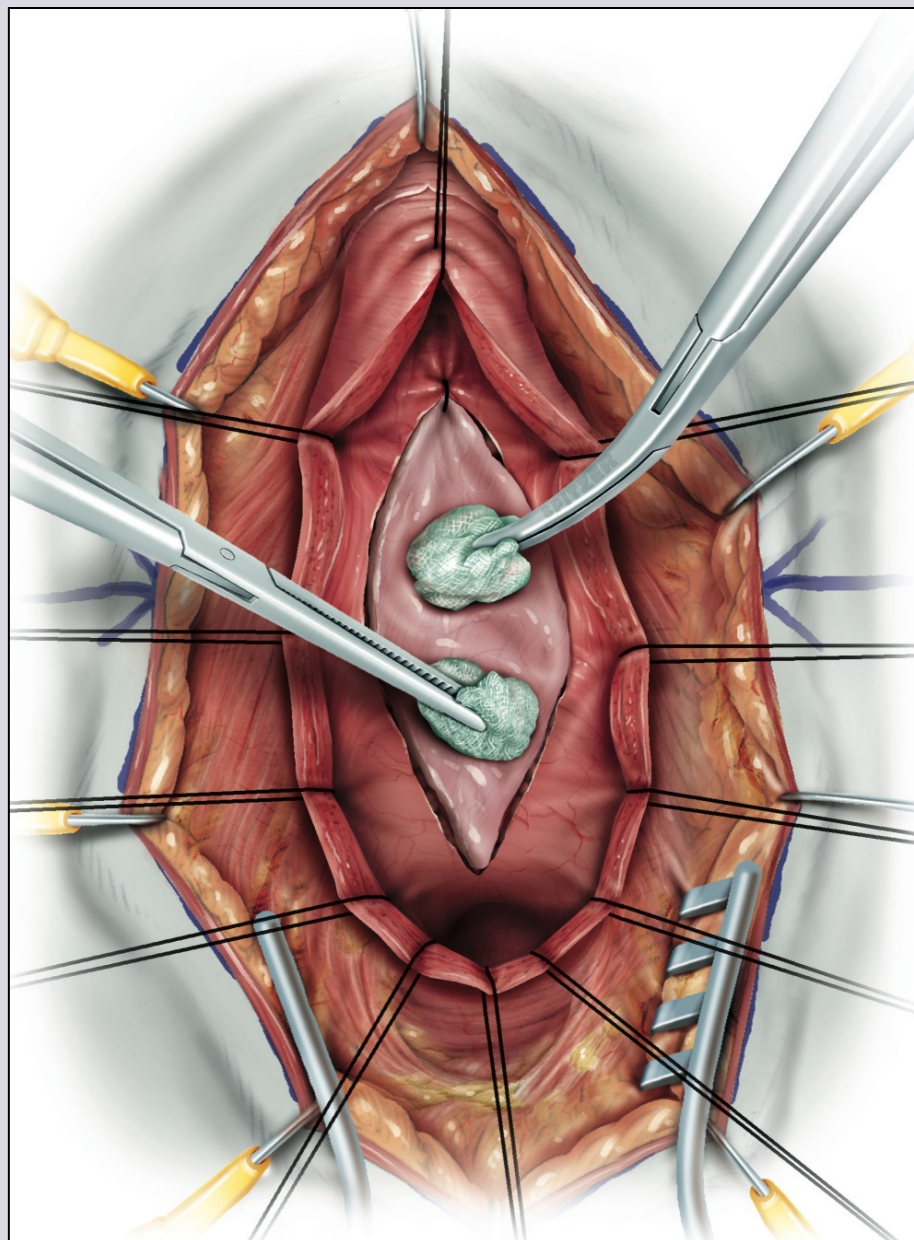
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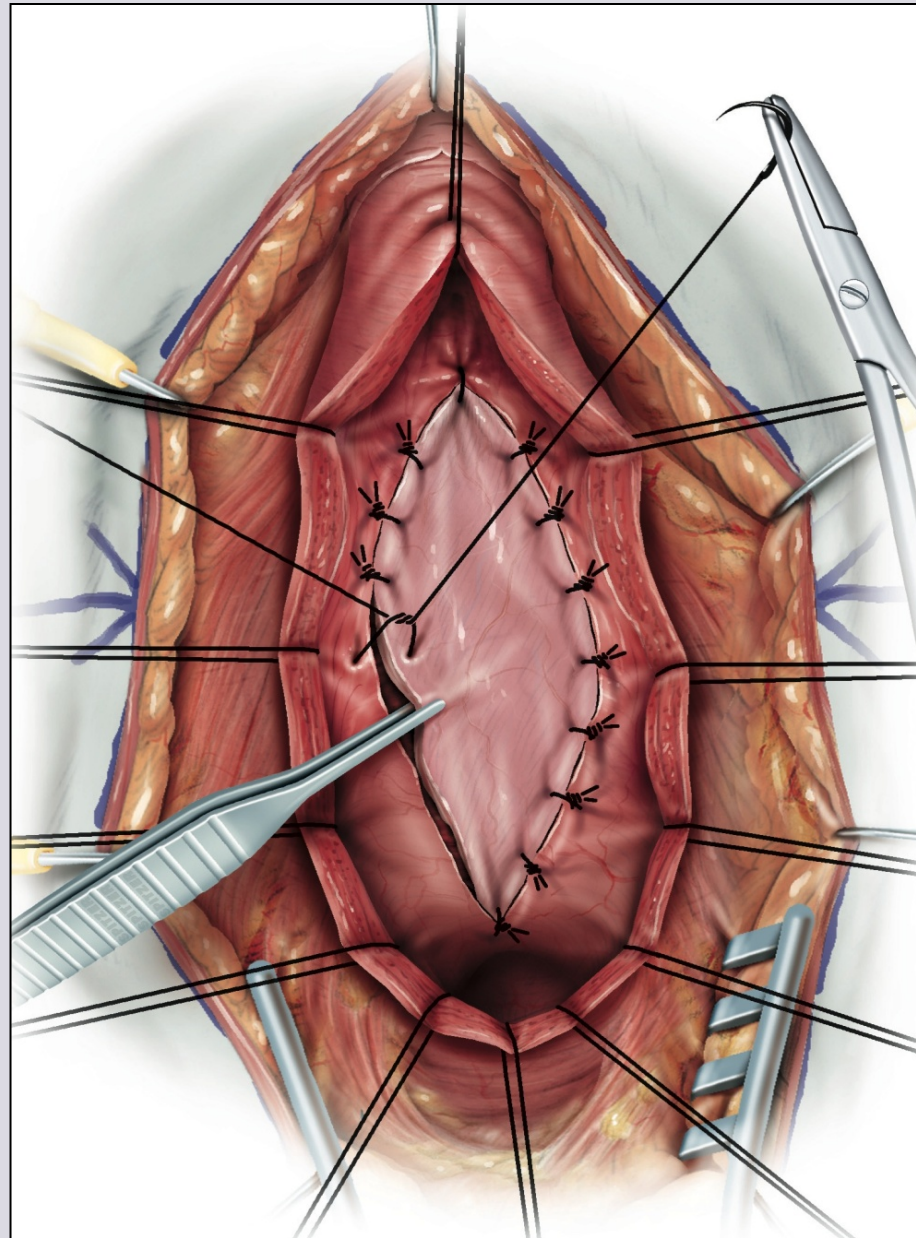
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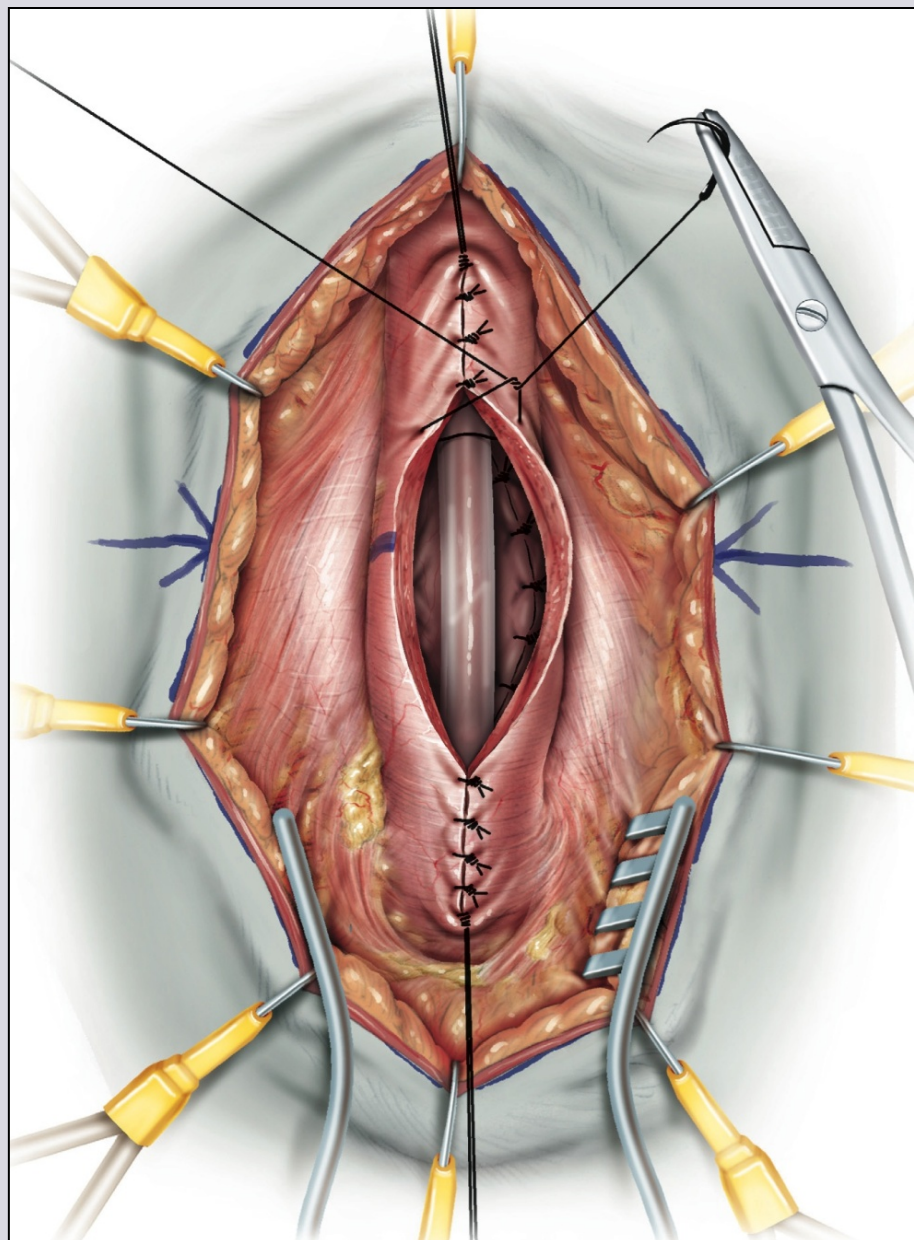
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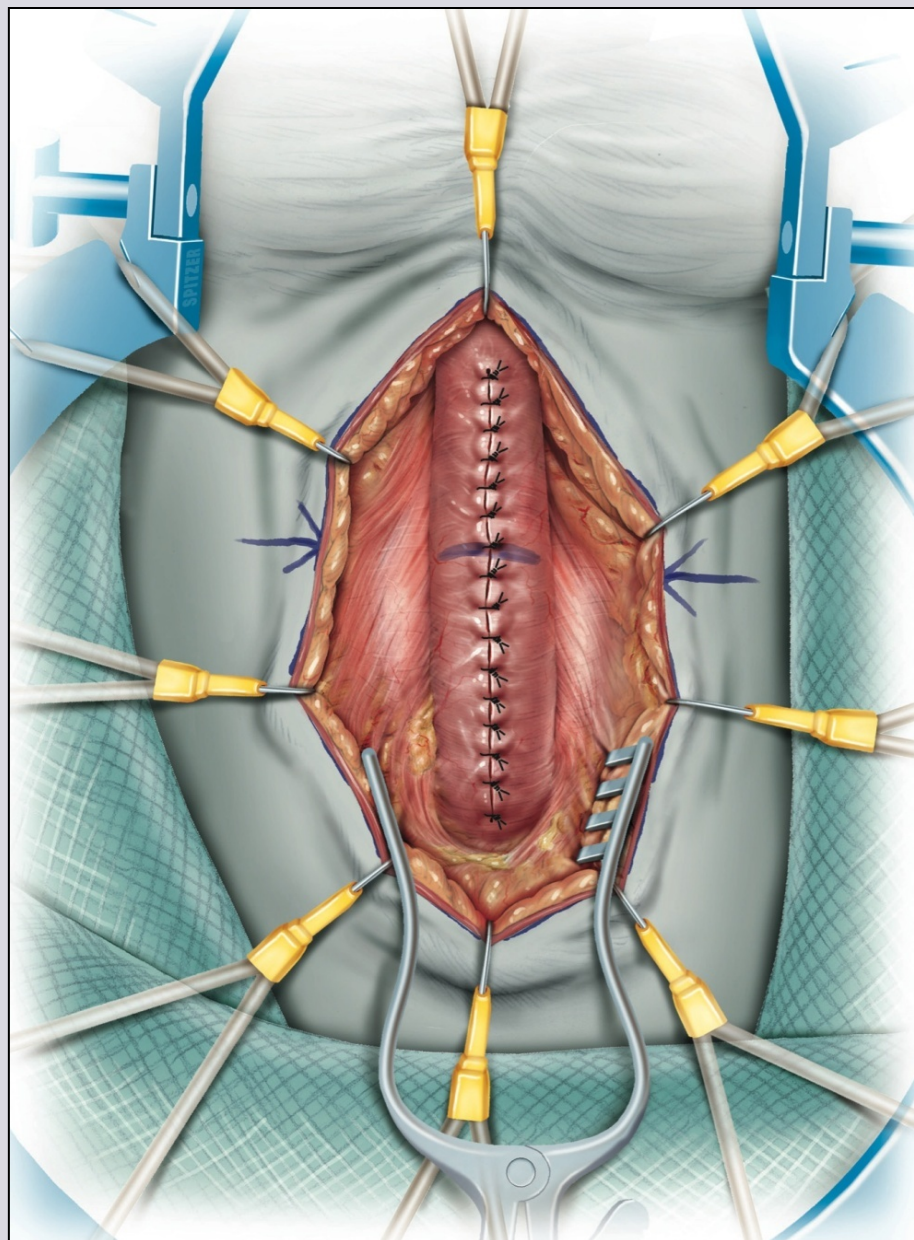
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## Conclusions

**In the era of robotic surgery, it is also time to change urethral surgery!**

- ❖ **Increase the use of minimally invasive techniques in urethroplasty, reducing the incidence of complications and improving patient quality of life.**





**Register now !**

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